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CONTENTS FOR JULY.


| | | | |
|---|---|---|---|
| Quality and Tone of Mind | 1 | Events of the Month. | |
| Size of Brain an index of mental power | 2 | Hoboken Riot—Woman's Rights Convention | 19 |
| Paxton—Archt. of Crystal Palace of World's Fair. | 3 | Lake Superior—New Constitution of Maryland | 20 |
| Professor Silliman | 4 | Earthquake at Valparaiso | 20 |
| Education | 6 | Release of Kossuth | 21 |
| Vitiated Air in Public Assemblies | 7 | Physiology in Pittsburg | 21 |
| Physico-Psychology | 7 | Phrenology in N. London | 22 |
| The Cherry — Fruit for Market | 10 | Our Journals in England | 22 |
| Phrenology, by Professor Silliman | 11 | Public Gratitude | 22 |
| Animal Phren'ogy—Ape, Baboon and Monkey | 11 | A Reading Community—Who can beat it? | 22 |
| Steam-Engine | 14 | General Notices–Reviews—Advertisements | 23 |
| Integrity | 17 | Hyd'pathic Encyclopedia. | 24 |
| | | To the Readers of the Journal | 24 |


## QUALITY AND TONE OF MIND.

In judging of character, the quality of the organization is a matter of the first importance. Two persons may have heads shaped precisely alike, and if one have a fine, delicate temperament, the other a coarse, gross organization, there will be as much difference in the tone of those minds as there is in the quality of mahogany and hemlock timber: one will have refinement of mind, and elevation of feeling and sentiment; the other will be low, sensual, and animal in his desires, pursuits, and susceptibilities.

In the beautiful portrait of Linnæus, the world-renowned botanist, and florist, we perceive a very delicate and susceptible temperament, and a most refined quality of organization. This is, eminently, a feeling, sentimental, and exalted constitution, which always imparts purity, sweetness, devotion, exquisitness of taste, and elevated mental tendencies; and, combined with his large intellectual and moral developments, which usually accompany such bodily conditions, he had a remarkably clear and active mind, great moral worth, and such an enthusiastic love of the beauties of nature, as to bring him into intimate fellowship and sympathy with the floral kingdom. It is everywhere a mark of purity of mind, and amiability of disposition, for a man to be fond of flowers. We do not remember to have known a very bad man who was decidedly fond of flowers. There is so much of pure, poetical feeling; such innocent taste connected with a love of floral beauty, that it cannot well exist in a corrupt and depraved mind. In the portrait of Linnæus we see great delicacy of features, a mild, animated eye, soft, fine hair, the brain narrow at the base, and elevated and expanded in the top and fore-head. The middle of the forehead, at number 37, shows great Comparison, which made him critical, and aided him in his nice classifications. What a contrast is seen in the portrait of King Louis XVIII.

LINNÆUS.

LOUIS XVIII.

This King of France, possessed an animal temperament, and his whole organization was gross and coarse. It will be seen that the base of the brain, compared with the upper portion, was very large, indicating that the selfish and animal propensities were ruling elements of his nature. He was remarkable for devotion to the pleasures of appetite, and in connection with general sensuality and voluptuousness, he may be said to have lived to eat, and revel in animal indulgencies. Such a cheek indicates predominent power and activity of the stomach, and digestive system; and his head, just forward of the ears, was very broad. Alimentiveness, organ No. 8, was excessively developed. His intellect was comparatively weak, and took a low direction, and the moral organs too small to exert a controlling or elevating influence in his mind. With his gross temperament, and excessive animality, his character and conduct were a disgrace to his exalted position, and to the human race. No government but a hereditary monarchy, would tolerate such a man as a ruler.

## THE SIZE OF THE BRAIN AN INDEX OF MENTAL POWER.

BY A. P. DUTCHER, M. D.

NO. II.

The SECOND condition of size is the location of the brain. Anatomists usually divide the brain into three parts, the *cerebrum*, or brain proper; the *cerebellum*, or little brain; and the *medula-oblongata*, which lies below the cerebrum, and level with the cerebellum, and gives birth to the spinal marrow. The cerebrum consists of two hemispheres, separated by a strong membrane, called the *falciform process* of the *dura mater*, which passes from the middle of the forehead to the back part of the head. The cerebellum is separated from the cerebrum by a membrane called the *tentorium*. Each hemisphere of the cerebrum is divided into three lobes, the anterior, the middle, and posterior. The anterior lobes, which are situated in the forehead, are the seat of the intellectual faculties; the upper part of the middle lobes, are the seat of the moral powers; while the lower part of them, and the whole of the posterior lobes, are devoted to the propensities. Now, either of these lobes may be small or large. In such a case, there will be either perfect or imperfect manifestation of some of the mental faculties. If, for example, the base of the brain be very large, and the anterior lobes decidedly small, although the head as a whole may be large, there will be a lack of intellect. In such a head there will be much more animal than intellectual, more physical than mental power. On the other hand, where the anterior lobes are very large, and the other parts small, there may be intellectual power, but not force enough to use it to advantage. If the intellectual organs and propensities be large, and the moral organs small, there will be power, both intellectual and physical, but it will not be directed into its proper channel,—hence, the individual will be dangerous in the community. If all the lobes of the brain be very small, there will be a deficiency in all the mental manifestation, intellectual, moral, and physical. In order, therefore, to have a good head, each part must be full.

Pope Alexander VI. had brain enough, and so had Melancthon. Contrast their heads.

In the one, we have a fine development of the moral and intellectual lobes, while the propensities are small.

MELANCTHON.

In the other, we have enormous propensities, considerable intellect, and small moral organs. Hence the difference in their characters; the first, the highly intellectual and moral associate of Luther in effecting one of the most glorious reformations that ever dawned on the world. The latter, a cunning, selfish, and cruel tyrant.

ALEXANDER VI.

We regard it therefore, an established principle in the physiology of the brain, THAT THE LOCATION OF THE PRINCIPAL MASS OF BRAIN, FURNISHES A DIRECT INDEX TO THE MENTAL CHARACTERISTICS OF THE INDIVIDUAL.

The THIRD condition of size is AGE. The effect of age, or periods of life, on mental manifestations, is known to every attentive observer; and to the Anatomist and Physiologist its effects are equally well known. And, indeed, he finds that the brain has as many ages, if not more, than Shakspeare gives to man. There is, for instance, a brain of infancy and childhood, another of boyhood, a third, of juvenility; a fourth, of early manhood; a fifth, of mature manhood; a sixth, of declining manhood; a seventh, of early old age; and an eighth, of the childhood of extreme senility. And each of these differ, more or less, from all the others. So do the manifestations of mind, all the different periods of age through which the brain passes, differ from each other, in a corresponding manner and degree.

In infancy and childhood the brain is superabundant in fluid substance, and, therefore, tender and feeble, defective in organization, and altogether immature. "At this period," says Meckel, "the brain weighs about ten ounces, and so abundantly is it supplied with blood, and so rapidly does it increase in size, that at the age of seven it weighs about three pounds. Its consistency, during this period, is also gradually increasing, it is, thereby, becoming firmer, more consistent, and less vascular; the difference between the medullary and cortical portons is more prominent; the former is less red, the latter, deeper colored; the convolutions better marked, and so the peripheral surface more extended. But the mental faculties are yet in a weak and crude condition. In boyhood and juvenility, the brain is vastly improved in condition and strength; and the mental powers too, in early manhood their improvement is still higher, and by the prime of life, they, like the organs of the body generally, are in their prime.

The next change exhibited by the brain and the mental phenomena, is when they enter upon the declivity of life; and that portion they also pass over in the same harmony, in relation to the mutations sustained by them, with which they had previously made their ascent. Every deterioration which the lapse of time produces in the brain, is accompanied by a like deterioration of mental action. And thus proceed the kindred changes until death arrests them.

There are, however, some exceptions to this rule, but generally speaking it is the cerebral and mental history of all whose lives have been protracted to the period of old age. In estimating the powers of the mind, by the size of the brain, this condition should never be neglected.

The FOURTH condition of size is HEALTH. It not unfrequently occurs, that disease has made such havoc in the brain, that the natural tone is entirely lost. Intemperance and

other vices have such an influence upon it, that it gradually loses its power, until insanity, or idiocy is the result. In other instances the digestive apparatus is so feeble that it is not able to supply the brain with its appropriate nourishment, either in quantity or quality, consequently its operations are impeded, and its manifestations are feeble. Such cases may be regarded as exceptions to the general rule of size being a measure of power.

Notwithstanding the exceptions which I have named, to size being a measure of power, when applied to the brain, yet so indispensible is it to the manifestation of mind, that when the circumference of the head, taken above the eyes, does not exceed THIRTEEN INCHES, imbecility and idiocy always attend, according to Gall: and Dr. Voison, a celebrated French physician, found on careful examination, that idiocy was complete when the measurement varied from ELEVEN to THIRTEEN INCHES, while that from the root of the nose over the head, to the spine of the ociput, measured only between EIGHT and NINE INCHES. In the full sized head, the former measurement averages TWENTY-TWO inches; the later, THIRTEEN. In the heads of very distinguished men it passes this average, thus, the *skull* of Spurzheim measured TWENTY-TWO and ONE-QUARTER, and THIRTEEN and SIX-TENTHS inches, respectively. It should be remembered, however, that a person may have a large head and still be idiotic, the deficiency existing in the structure, not in the size of the brain.

That size is a measure of power when applied to the brain, (other things being equal,) is now admitted by the most distinguished Physiologists of the age. Magendie, Carpenter, and Solly, all agree THAT THE VOLUME OF THE BRAIN IS GENERALLY IN DIRECT PROPORTION TO THE CAPACITY OF THE MIND; and it is surprising that any individual, who has paid the subject the least attention, should be found, in the present age, to controvert so obvious a proposition.

### THE BRAIN—ANIMAL AND HUMAN.

The brain is observed to be progressively improved in its structure, and, with reference to the spinal marrow and nerves, *augmented in volume* more and more, until we reach the human brain; each addition being marked by some addition to, or amplification of, the powers of the animal—until in man we behold it possessing some parts of which animals are destitute, and wanting none which they possess. It is a remarkable fact, that man seems to pass through every gradation of animal existence. His heart is at first a mere pulsating vessel, like that of an insect; then a sack like that of a fish; then two sacks like that of an amphibious animal; then a regular double heart. So the human brain at one period presents appearances analogous to the brain in fishes: then to that of birds; then to that of the mammalia; and finally becomes, by the addition of new portions, a proper human brain, and is such at birth; and, according to Sœmmering, has no convolutions till the sixth or seventh month of gestation, being in this respect like the brain of mature fishes and birds, in which convolutions are never found. Convolutions then begin to appear and gradually enlarge to adult age.—*George Combe.*

## JOSEPH PAXTON,

### ARCHITECT OF THE CRYSTAL PALACE OF THE WORLD'S FAIR.

Mr. Paxton's portrait shows a combination of activity and strength, a sharp yet compact organization, admirably fitting him for clearness and positiveness of mind. His head is high, showing expansiveness and elevation of sentiment, perseverance and dignity, and a profound respect for whatever is noble, imposing, and beneficent. The region of SELF-ESTEEM is by no means deficient, although the abundance of hair on the forehead and back-head leaves an apparent flatness in the crown, yet if the outline of the cranium be traced, the regions of FIRMNESS and SELF-ESTEEM appear large. But what most forcibly strikes the Phrenologist, is the great prominence of the brow, and the fulness at the external angle of the eye, in the region of ORDER and CALCULATION; this class of organs gives great practical talent, system, taste, mathematical ability, and power to attend to details. The temple is very full, showing great CONSTRUCTIVENESS and IDEALITY, which, joined with large CAUSALITY, and very large COMPARISON, impart the inventive, artistic, taste and talent. Then his MARVELLOUSNESS, which appears very large, makes him expand his investigations to the regions of the original, unknown, and that which excites the wonder and admiration of mankind. He cannot operate in a beaten path—his mind instinctively wanders out of it, and above it. INDIVIDUALITY, at the root of the nose, and all the organs in the arch of the brow, with COMPARISON and IDEALITY give him his taste and talent as a florist and horticulturist.

For the accompanying portrait we are indebted to the kindness of our friends, Messrs. A. Palmer & Co., publishers of the "North American Miscellany."

#### BIOGRAPHICAL SKETCH.

We present our readers with the portrait of Joseph Paxton, a man whose name will hereafter stand enrolled among those whose works have done honor to their time and country. Mr. Paxton, who, as all his friends know, and as all the admirers of his character and genius will be glad to learn, is in the very prime and vigor of his age, and bids fair to enrich not only science but literature, with many contributions worthy of his now great name, has acquired a reputation as wide as the civilized world, by the conception of the great idea of the "Crystal Palace," a building to which history offers no parallel, either in the past or the present. Whether we consider the noble and humanizing purposes to which that building is consecrated, the appropriateness, the elegance, the vastness, and the beauty of the design, or its simple, but most admirable novelty, we must acknowledge Mr. Paxton's high claims to the grateful appreciation of his contemporaries, and to that enduring place in the national annals which is the best reward of all true greatness in any and every department of public usefulness.

Mr. Paxton, like most other men of note, is "self made." He owes his high position to his own intellect and industry; and can say of his own courage and perseverance, and of the assiduous cultivation of his mind and heart, that they alone raised him from the humblest rank of the honest working-men of his country, to the enviable position in which he now stands.

Mr. Paxton, whose original profession, as is well-known, was, as it still is, that of a landscape gardener, was first employed in a responsible capacity by his Grace, the Duke of Somerset, at Wimbledon. From that situation he passed, about twelve or thirteen years ago, as we are informed, into the service of the Duke of Devonshire, at Chatsworth; but that nobleman was not slow to perceive that Mr. Paxton possessed administrative faculties, and a knowledge of and skill in financial arrangement of a high order, in which capacities, we believe, he has been of essential service in the management of the Duke's estates, both in England and Ireland.

There are, indeed, few instances of scientific application which present so many points of interest as the circumstances by which this gentleman has earned his fame as the architect of the Great Exhibition Building. With the name of Mr. Paxton have long been associated the glories of Chatsworth, and the sole contrivance of the

JOSEPH PAXTON.

vast conservatory, which the King of Saxony graphically compared to "a tropical scene with a glass sky." The house built from Mr. Paxton's design, for the flowering of the *Victoria regia*, was, however, the immediate parent of the Great Exhibition Building. A design for the latter structure had already been prepared, but had failed to impress the public with its fitness for the purpose; and Mr. Paxton, apprehensive that an irreparable blunder would be committed in the intended building, proposed to the Executive Committee another design. Certain difficulties lay in the way, but Mr. Paxton was not to be deterred; his mind was made up; "and" said the Duke of Devonshire at a public meeting held at Bakewell; "I never knew Mr. Paxton resolve to undertake what he did not fully accomplish." On the morning of the 18th of June, whilst presiding at a railway committee, he sketched upon a sheet of blotting paper his idea for the great Industrial Building. He sat up all that night, until he had worked out the design to his satisfaction; and the elevations, sections, working details, and specifications, were completed in ten days. Next morning, Mr. Paxton started from Derby, by railway, for the metropolis; and in the same train, and carriage, was Mr. Robert Stephenson, the engineer—a member, moreover, of the Royal Commission, and who, at Mr. Paxton's request, examined the plans.

"Wonderful!" exclaimed the engineer—"worthy of the magnificence of Chatsworth!—a thousand times better than anything that has been brought before us! What a pity they were not prepared earlier!"

"Will you lay them down before the Royal Commission?"

"I will," was the reply.

Next day the Royal Commission met; but Mr. Stephenson had not an opportunity of submitting Mr. Paxton's plans to his colleagues and Prince Albert; the office was, however, delegated to an able hand, Mr. Scott Russell, one of the secretaries of the Commission. Mr. Paxton next waited upon Prince Albert, at Buckingham Palace, to explain the details. The scheme was referred to the Building Committee, who could not entertain it, as they had devised a plan. However, Mr. Paxton appealed to the public judgment in the illustrations and pages of this journal, and the practicability, simplicity and beauty of the scheme instantly became popular. Thus encouraged, Mr. Paxton next procured a tender to be sent in to the Building Committee, for his design. This was prepared by Messrs. Fox and Henderson; and at length Mr. Paxton's plan was tendered by them as an "improvement" on the Committee's design, and their offer proved to be the lowest. It will be recollected what followed: the Crystal Palace was eventually chosen unanimously, not only by the Building Committee, but by the Royal Commission; and the many thousands who assembled within the fairy-like structure at its inauguration, on Thursday last, must have been impressed with the soundness of this decision.

Such is a brief *resume* of the circumstances which led to this fortunate adoption of Mr. Paxton's design: a more fitting temple for the world's industrial treasures could not be devised; and it was but a just recognition of its author's great share in contributing to the success of the Exhibition, that he led the inauguration pageant on Thursday, May 1st.

Mr. Paxton is a distinguished Fellow of the Linnæan and Horticultural Societies, and has produced a Botanical Dictionary of accredited worth, besides editing the "Flower Garden," and other botanical and horticultural works. The gardens at Chatsworth form an excellent finishing school for young men; and many foreigners having received here instructions in horticulture, have invested Mr. Paxton's taste and skill with European celebrity.

The accompanying portrait, an excellent likeness, is from a photograph by Kilburn.

London Illustrated News.

## PROFESSOR SILLIMAN.

HIS PHRENOLOGICAL CHARACTER AND BIOGRAPHY.

He has the indications of a tough, hard-working, enduring natural constitution. He is made up on the large and strong principle, and had his life been devoted to physical labor, he would have had uncommon hardihood and power of body, but having been devoted to mental labor, he has thereby refined, softened, and elevated the tone of his organization, so that the mental temperament decidedly prevails, giving him clearness and activity of mind, while the motive and vital systems give him patience, steadiness, and strength, so that he is comparatively cool, and has command of his powers, both physically and mentally, and is, therefore, rarely thrown off his balance. His Phrenological organization is most favorable for general uniformity of mind and character. His head is large—most of the faculties are full and well developed—his forehead is very high and broad—none of the intellectual organs appear defective. His great natural abilities, with equal opportunity, would render him as successful in one department as in another. His perceptive organs are all very large, and give him great facility in acquiring facts, instituting experiments, and judging correctly of the quality, condition, and relation of things. The middle range of the intellectual faculties being large, give him the capacity to retain knowledge, and keep the experience of the past in his mind with all the clearness of the present, so that it is unnecessary for him to learn his lesson more than once.

The reflective organs, in the upper part of the forehead, are decidedly prominent, and furnish the strength of mind, power of research, ability to investigate, capacity to understand and combine, joined with the ana-

lytical, descriptive, criticising cast of intellect, for which he is so distinguished.

Constructiveness is also large, which, combined with his highly developed intellect, gives unusual ability and talent to construct, direct, experiment, work, and put into execution his various plans. He has very large Language, which enables him to explain, teach, lecture, write, illustrate, and make any subject, in which he is interested, glow with a life-like reality. His moral brain is particularly elevated and expanded, the influence of which is to give a high tone to the mind, desire to be useful and benefit mankind, and to live with a consciousness of his dependence upon a higher power. His religious susceptibilities are strong, enabling him to balance and regulate his passions and animal impulses, and add greatly to the strength and perfection of his character.

Firmness is decidedly large, joined with a large crown to the head in the region of Self-Esteem, Approbativeness, and Conscientiousness, giving unusual stability of character, strength of purpose, self-reliance, perseverance, integrity, circumspection, and consistency of conduct, rarely to be found. Approbativeness is very large, which is a powerful spur to the other faculties of his mind. He not only has an eye on the development of new truth, and is exceedingly anxious to make as great advances as possible, for truth's sake, but is withal very solicitous to elevate himself and to gain notoriety, and distinction among the wise and learned. This would also render him very polite, affable, and anxious to please, and willing to serve others, for the purpose of making friends, and rendering himself agreeable; hence, as a teacher, leeturer, or writer, he aims not only to impart new truths, and agreeable entertainment, but to so present his subject as to win applause and secure approval and general popularity.

This faculty, joined with his Benevolence and strong social feelings, make him conciliatory, and strive as far as possible to render himself agreeable, while they enable him to elicit the friendship and coöperation of others. He is highly interested in the family and domestic circle, soon becomes attached, is warm-hearted, and well qualified to grace the social circle, to entertain, and make his friends happy. His executive powers are all prominent, giving force and energy of character, which is a powerful aid in carrying

BENJAMIN SILLIMAN

into execution his plans and purposes, which, in connection with his ambition, will, and intellect, disposes him to rely on his own resources, and fortifies him in all his undertakings, making him feel competent to grapple with anything he may desire to accomplish. Secretiveness and Cautiousness are apparently full, which give him tact, management, power to conceal, and control his feelings so as not to say or do indiscreet or imprudent things. His developments as a whole are very favorable, and not often are we called upon to analyze a mind which is so well balanced, where all the powers can be so favorably presented, a character so harmoniously developed, rendering his labors so efficient and useful, at the same time crowning himself with favors and praises, with so little existing to mar his usefulness and influence. He could not easily be a bad man. Such minds are self-poised and mold their own circumstances.

### BIOGRAPHICAL SKETCH.

Professor Benjamin Silliman was born on the 8th of August, 1779, in North Stratford, now Trumbull, Connecticut. Both his father and grandfather were educated at Yale College.

His grandfather, Hon. Ebenezer Silliman, graduated in 1727, and was for many years a Counsellor and Judge of the Superior Court, in the Colony of Connecticut.

His father, Gold Selleck Silliman, Esq., graduated in 1752, and was a lawyer of distinction at the Fairfield Bar. In the war of the Revolution he, in part or wholly, relinquished his profession, and engaged actively in the cause of his country.

Professor Silliman entered the Freshman class in Yale College at the Commencement in 1792, and graduated in 1796, at the age of seventeen. On leaving College he taught school for a short time in Wethersfield, and then entered upon the study of law. He was admitted to the bar in the County of New Haven in the spring of 1802.

In 1799, he received the degree of Master of Arts in course, and was then appointed tutor in Yale College, and from that time to the present has been connected with it as an instructor.

He was elected to the professorship of chemistry in 1802. At this time his knowledge of the science was derived from reading only, and he spent two winters in Philadelphia attending

lectures, and performing experiments by himself. He was inducted into the professorship of Chemistry in 1804, and gave a short course of lectures in the summer of that year. In the spring of 1805, he went to Europe, and spent fifteen months. During this time he attended full and able courses of lectures in London and Edinburgh, besides gaining additional knowledge in mineralogy and geology, and also attending the courses of distinguished medical professors. Since the establishment of the medical department in Yale College in 1813, he has given instruction in pharmacy.

He founded "SILLIMAN'S JOURNAL" in 1818. He has been an indefatigable student, and has probably done as much or more than any man in the United States towards raising science to its present state of culture.

Professor Silliman has appeared as an author at various times. In 1810 he published a "Journal of Travels in England, Holland, and Scotland," and "Two Passages over the Atlantic in the years 1805 and 1806;" and in 1820, "Remarks made on a short tour between Hartford and Quebec, in the Autumn of 1818," both of which works have passed through several editions. In 1830 he published "Elements of Chemistry, in the order of the Lectures in Yale College," 2 vol., 8vo. He has also published, with notes and appendices, several editions of Henry's Chemistry, and Bakewell's Geology, beside several smaller productions.

In talent his main forte is as a lecturer and a practical man—rather to simplify and reduce to practice the inventions and ideas of others than to originate. His talents as a *writer* must be inferred from the *extent, success, character, and celebrity* of his *works*. He possesses a *social* character of the highest order, equally distinguished for his affability, "suavity of address, marvellous currency of talk, and an infinite composure over *exploding retorts*." As a mineralogist and geologist he holds a high rank, and the Cabinet at Yale, which he was chiefly instrumental in collecting, is one of the best in the country, and will remain a lasting monument of his untiring industry, research, and skill.

Although Professor Silliman has been a most attentive and laborious student in his peculiar department of science, and contributed so largely to its stores of knowledge, and to elevate it in all our seats of learning, he has also been an attentive observer and warm supporter of the great elements of progress in other branches of learning. When the gifted and immortal Spurzheim landed on our shores to bless our country with the light of the true science of man, Professor Silliman extended to him his hand of welcome, as a benefactor and man of genius, attended upon his teachings, and lent him the aid of his friendship, and his pen to testify to his skill, and to call around the great reformer the attention and respect of the western world. It can hardly be expected that a man with Professor Silliman's great care and responsibility, in one almost endless field of research, should devote much time to the cultivation and development even of a science as important as that of Phrenology. But as an evidence of his sagacity to appreciate the new mental science, and his manliness and candor in readily yielding to its support the weight of his great name, he wrote an elaborate article in favor of Phrenology in the "American Journal of Science and Arts," ten years ago, creditable alike to his candor and talents, an extract from which we insert on page 11.

# Educational Department.

## EDUCATION!

NUMBER VII.

BY WILLIAM ELDER M. D.

The different tissues and organs in the human system bear each a more or less relation to the mental actions. The Brain seems to be the nearest, the first link in the series of instruments by which the soul maintains its present intercourse with surrounding things.

It is the seat of consciousness. All impressions made upon the the external senses, and all affections of the body generally, are perceived or recognized there as in the center of animal life. The nerves, which are the organs of sensation, meet and deliver their impressions there. Whatever interrupts this nervous communication, and so disconnects any part of the body from the brain, renders consciousness of its conditions, changes and affections impossible. If the optic nerve be cut, tied or compressed, vision is interrupted, whatever be the condition of the eyeball; and no violence inflicted upon a limb, if its nerves are in like manner interrupted, will reach the seat of consciousness and be felt by the mind.

Moreover, if the brain itself be compressed by fluids, tumors or depression of the surrounding bone, or its own blood vessels be turgid to the extent of suspending its functions, though all the rest of the body is in perfect health, the torture of the rack cannot awaken the subject to any sense of pain, any perception of surrounding things, or consciousness of his own existence.

Again: the brain is the immediate instrument and seat of the mind; for all its volitions proceed thence. As in the former instance, whenever a sensitive nerve is interrupted, sensation and perception by it fail, so whenever a motor nerve is divided, compressed or otherwise rendered incapable of its office, no exertion of the will can produce any motion in the muscle or member which that nerve supplies. Organic life may continue in the part for any length of time, but its obedience to the will is wholly prevented; the limb or muscle is thenceforth beyond the control of the mind.

The Brain being thus the treasure-house of sensations, the place where all communications from the external world are gathered to a point, and all the changes in the body recognized; being the point, also, whence the mandates of the mind issue—the council-chamber and throne-room of the soul's sovereignty—it has all the conditions, and answers every requirement which should constitute it the immediate organ and instrument of the mental faculties.

In popular apprehension and language, the intellectual powers are ascribed in a general way to the head; and to this reference to them everybody's experience testifies with unequivocal clearness. All the facts by which the locality of such functions may be ascertained, connect themselves with the brain, at least as clearly as vision is felt to be by the eye, or hearing by the ear. The ordinary and moderate activity of neither is felt at all, so as to be referred to them distinctly; but unusual intensity of effort, and that feeling of fatigue which follows long continued action of the reflecting faculties, locate themselves as distinctly in the brain as intense action and fatigue of these senses are felt in their respective organs. Moreover, the intellectual actions indicate their corporeal locality, with the greater certainty, because, it is not confused by any of their secondary or reflected effects upon other parts of the body. The perceptive and reflective powers employ chiefly the voluntary apparatus of the body, (the muscles and members of the face and limbs,) in their service; and the sympathetic motions and sensations which thought excites are seen and felt almost exclusively in those outward organs, and in their attitudes and gestures; but they are so remotely connected with the animal life, and so distinctly subordinate to the mind, that their amputation, or other incapacities of action, are known to be no hindrance to its functions. Their affections are so plainly symptomatic only, that they are in no danger of being mistaken for signs of the immediate presence of the primary impulse. The finger that assists in delineating a thought is not suspected of being the thinking instrument; and the eyebrow corrugated in the effort to recover a lost idea, is too plainly a symbol of the natural language to be credited with any nearer office in the services of the memory.

But it has happened, because emotion manfests itself often with great force in the viscera of the chest and abdomen, that popular opinion

has located the affections there; and following this notion and addressing itself to it, Poetry has almost consecrated the prejudice; and even Science with some formality of effort, but without any success, has occasionally attempted its justification.

I feel strongly tempted to undertake the explanation of this much-honored conceit; for its grounds and reasons are full of interest and beauty; but, I must content myself with disproving it. This, however, must be deferred until another number,

# Physiological Department.

## VITIATED AIR IN PUBLIC ASSEMBLIES.

BY PROF. L M. COMINGS.

In looking over the report of the Paris Academy of Sciences for 1843, we noticed some remarks made by Le Blanc on the purity of Atmospheric Air which it may not be unprofitable to introduce in an article for the Journal.

This gentleman directed his remarks principally to an analysis of the air in rooms, hospitals, and all places and situations, wherever it is vitiated by the congregation of persons. He shows that the air of an empty room, the doors, and windows of which are not closed, is precisely the same as that out of doors. He also states that he found the same to be the case in the *closed* Greenhouses of the Jardendes Plants, this is a seeming contradiction; but he explains it by the absorption of the carbonic acid of the air, by the plants contained in them and the giving out again of this air purified, by the plants which had absorbed it.

In one of the wards of the Hospital of La Pitie, the doors and windows having been closed, the quantity of carbonic gas was found to be tripled, as compared with what it was before the room was closed. In one of the sleeping rooms of the Salpetriere, the quantity of carbonic acid in the morning, the doors and windows having been closed during the night, was eight times greater than in the open air. In the great Lecture Room of the Sarbonne, after a lecture of an hour and a half, one per cent of oxygen had disappeared, and been replaced by one of carbonic acid. The quantity of carbonic acid in one of the Ecoles d'Ailes, of Paris, after it had been closed for three hours, while the pupils were taking their lessons, was found to be precisely the same as in the experiment at the Salpetriere. At the Chamber of Deputies, he found the quantity of carbonic acid gas to vary from two to four parts in a thousand. The latter amount approaches the limit at which respiration becomes oppressive and injurious.

These rooms were of ordinary tightness and ventillated as much as most of our Halls, Meeting Houses, &c., so that it is very evident, that the air becomes vitiated to the same extent in most of our assemblies, especially in this cold climate. But we can come at an approximate mathematical certainty in regard to this impurity, for our physiologists have shown by very careful estimates, that an averaged sized man consumes about 45,000 cubic inches of oxygen and gives out about 40,000 of carbonic acid in 24 hours.

Now when we take into the account, our close rooms without fire places, air-tight stoves, the escape of coal gas, or the vitiation produced by the continual burning of dust which comes in contact with the hot stove, or the decomposition produced by the burning of gas, for it is proved that one burner will produce more carbonic acid than six or eight candles. What can we expect but diseased lungs, phthisis and pulmonary complaints? It is true that some improvement in some places has been made in our public rooms but still there is a great neglect on the part of our architects and builders in not furnishing suitable ventillation to our large halls.

Other experiments have been made, besides those above adduced, to prove the quantity of carbonic acid exhaled from the body. Professor Sharling of Copenhagen, a few years since employed the following means, and obtained the results as described below. The subjects of the experiments were confined in an air-tight box wherein they were perfectly at ease, being enabled to speak, eat, sleep or read without inconvenience; a constant current of atmospheric air was admitted into the box, and the deteriorated gases abstracted by means of an air pump. The air withdrawn was conducted into a proper arrangement of bottles some containing sulphuric acid, others a solution of caustic potash. The quantity of carbonic acid, both previously and subsequently to each operation was carefully ascertained by being recived into three graduated tubes, the results were as follows:—

The Prof. himself, aged 35, exhaled 7 and seven tenths ounces during 24 hours, seven of which were spent in sleep: a soldier 28 years old, exhaled 8 forty five hundreth ozs; a young woman aged 19, exhaled 5 and eighty-three hundredths; a boy aged 9 and a half years exhaled 4 and sixty-nine hundredths ozs; a girl 10 years old 4 and forty-two hundredths ozs.

From these experiments, Prof. Sharling deduces that males exhale more carbonic acid than females and children comparatively more than adults. He also finds that less of the gas is given off during the night than during the day, and that in certain cases of disease which he does not specify, less carbonic acid is formed than during the healthy state.

From experiments made in England, it was found that when the atmosphere was deteriorated by burning charcoal, death was produced when 3 per cent of carbonic acid was present in the atmosphere. In all such cases of death from stoves, carbonic oxide was found in the air and its deleterious effect was attributed to that gas. Dr. Thompson of Glasgow has stated that one per cent of this gas will destroy an animal in two minutes; but this is at variance with the statement of Nysten.

Le Blanc, found that a candle was extinguished in air containing four and a half or six per cent of carbonic acid. In such an atmosphere, life may be kept up for some time; but respiration is oppressive and the animal is affected with very great uneasiness. Air expired from the lungs contains about 4 per cent of carbonic acid and hence this atmosphere is noxious; birds have often been killed with three per cent, and yet we have seen statements which affirmed that upwards of 3 per cent had been detected in some of the London theaters. These facts, are pregnant with importance, in reference to our health, and to the continual liability we are under every day of being exposed to this vitiated air, in our public assemblies.

## PHYSICO-PSYCHOLOGY.

REVIEW OF REICHENBACH'S "PHYSICO-PSYCHOLOGICAL RESEARCHES ON THE DYNAMICS OF MAGNETISM," &C.

[CONTINUED FROM THE JUNE NUMBER.]

Our first article, in review of this interesting book, was devoted mainly to a consideration of the new discoveries of the author relative to the properties of magnets, crystals, &c., in acting upon the human nerve, and emitting light. We have thought it proper to speak briefly of one more feature of the author's discoveries, in this department, which presented itself at a more advanced stage of his investigations. The phenomenon to be refered to was mainly connected with electro-magnets, or magnets whose force was temporarily induced by the current from a galvanic battery. The flames from the poles of a large electro-magnet, under strong action from a battery, were found to be much larger and brighter than those emitted by the permanent steel-magnet; and what was most remarkable, opening a new field of speculation, was that after the galvanic circuit was established, the magnetic flame, at first presenting only one color, would gradually, and slowly, resolve itself into distinct stratifications of color, presenting, in fact, a perfect iris, with the red below and the violet above. This phenomenon, as an invariable result of like processes under like circumstances, was ascertained beyond all doubt, but we have no room for the details of the experiments. Guarding against variations in the appearances of these colors, which he found to result from the varying distances from which they were viewed, our philosopher was now prepared for another interesting step. Having previously found that a magnetic bar, with poles in the direction of the dip, always emitted different colors from those it gave in the meridian, he carried out the suggestion as follows:—

"I fixed," says he, "the same two-feet long mag-

netic bar by its middle, in a Guidino's holder, which had a joint at the top, rendering it moveable in all directions. I brought it lengthways into the magnetic meridian, conformably toward the north pole, at first turned to the north, and afterwards inclined at about 95°, in the dip of Vienna. Starting from this, I made the northward pole pass through the complete vertical circle, which could be described around the axis of the magnetic bar in the plane of the meridian. I carried this into effect in the dark chamber,—first in the presence of Josephine Zinkel, who observed the changes developed from the west [south !] onward in the progressive motion of the northward pole." The girl saw the odic flame run through the series of colors represented in figure 20, commencing in the perpendicular direction downward at 0°.

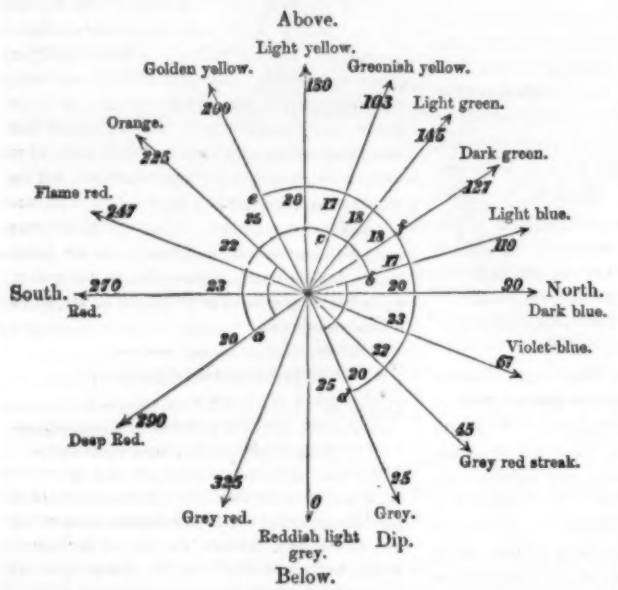



FIGURE 20.

"Examining the order of the colors," continues the author, "we discover a new iris, and in fact one with the colors lying in a circle. It is peculiar that the very direction in which the greatest magnetic intensity occurs, namely, the magnetic dip, or inclination of 65° to the horizon, is exactly that in which all the colors disappear, and nothing but dark grey remains. Is this grey to be taken as white, that is, a compound of all the colors; or as black, the absence of all ?" * *

"Those colors which lie in the lower half of the circle, namely, within 90° on each side of the dip point, display remarkable difference in intensity of light from those of the other, upper half, occupying 90° on each side of the golden yellow. The upper half, in the arc *a c b*, appeared bright, very luminous, fresh, and brilliant, while the lower was dull, opaque, and emitted little light. The greatest intensity of light lies in the golden yellow; the greatest obscurity, in the grey of the line of dip. One might call the upper half the day side, the lower, where almost all the colors are veiled with grey, and overcast, the night side. The yellow color, therefore, which we otherwise know to be the most intensely luminous in the spectrum, represents noon, blue and red, the two twilights; grey, the night. The earth's surface corresponds to the heavens in its influence upon the odic flame of the magnet."

The author expected a great change in the colors of these luminous appearances when the south pole of the same magnetic bar was used in the experiments, instead of the north pole; but the result did not confirm his anticipations, the changes being very slight, and consisting, for the most part, in a retardation of the points at which the specific colors of the luminosity were developed.

The Baron next proceeded to investigate the behavior of the bar-magnet while revolving through a verticle circle, in the plane of the *magnetic parallel* of his residence. The arrangments otherwise being the same as before, the results obtained in numerous repetitions of the trial, are represented in figure 22.

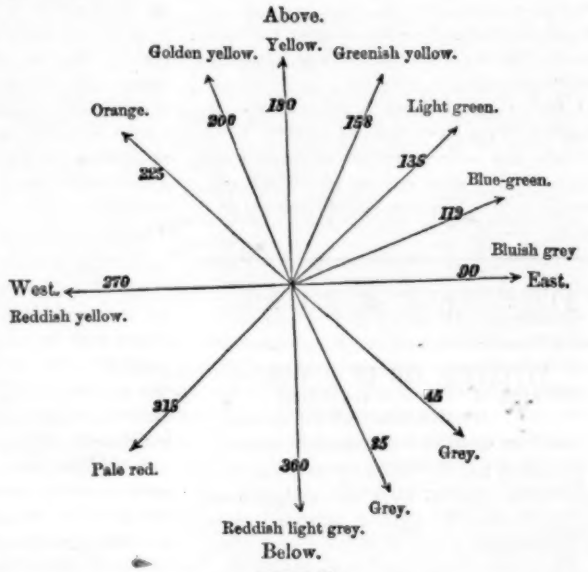



FIGURE 22.

The next experiment was by causing the magnetic bar to revolve in a *horizontal* circle. It gave results embodied in figure 25.

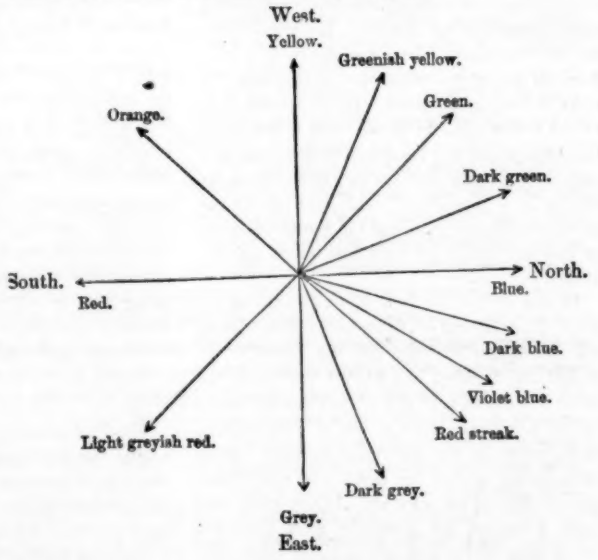



FIGURE 25.

A subsequent experiment of the author was with an electro-magnetized circular disk, which presented, at one view, all the varying phenomena of luminosity obtained by the varying positions of the magnet, the colors gradually melting into each other, and presenting a perfect circular rainbow. The several definite colors of the luminosity were always in the same positions with the identical colors as given by the bar-magnet.

From the circular disk our philosopher proceeded to experiments with an electro magnetized metallic *sphere*, hollow in the middle, and a little over a foot in diameter, and obtained results singularly beautiful in other respects, and seemingly decisive upon the great question of the origin of the *aurora borealis*. While under the action of the galvanic current, this sphere, or "*terrelle*," was shown to a number of intelligent persons, whose organs of

sight were more or less sensitive to the odic luminosity. These gave mutually corrobborative descriptions of the luminous phenomena which appeared, though by some this was witnessed in much greater intensity than by others. From among the several descriptions we select the following, as being rather more definite than the rest, but in other respects much the same:—

"I was able," says the author, "to examine these phenomena most accurately and circumstantially through Josephine Zinkle....She saw the globe in a white light before the voltaic current was completed. When the connection was made, and the internal iron bar converted into an electro-magnet, it displayed a bright light, decorated with the most beautiful colors, which always drew expressions of admiration from the beholders. Josephine Zinkle detected all the same phenomena as her predecessors:—the pole of the globe, toward the silver side of the battery, blue; that toward the zinc side, red; the light most intense at the poles, forming from them great stars, with apparently innumerable points, or rather raidiant thread-like prolongations, running over the globe, toward the equator, in various colors,—blue on the north, yellow on the west, red on the south, and grey on the east, and thus following the order so often observed; the whole of the east side was darker, the entire west side brighter, &c. She also perceived the band [previously described by others] which runs round the globe at the equator. She described it as a luminous streak passing horizontally round at the greatest circumference, and thus dividing the globe into two halves, upper and lower.....It is not sharply defined at the two edges, but has countless strong short teeth, like a fine comb, at right angles to the equator, and, therefore, pointing to the poles." * * * * * * *

"The preceding were merely the characters of the *odic incandescence* of the globe; we have now to examine those of the *odic flame*. A flame flowed out from each pole, perpendicularly to the surface of the globe, upward, two inches in hight, and about an inch and a half thick, which then expanded and overspread all sides of the globe parallel to its surface, became broken up into rays and streaks, and flowed out at once into the air in filaments of odic flame, like the filaments of the odic incandescence on the globe, and parallel to them, but only to a distance of a radius of about three inches from the poles. The entire diameter of the flaming appearance, over each pole, was rather more than six inches, beyond which distance it was lost in the air. The observer compared the whole flame to a loosely bound sheaf of corn, standing upright on the ground, with the ears and stalks hanging over in curves all round, so as to lie horizontally to one another over the band. The streaks of flame were not steady, but flickered and scintillated constantly backward and forward, becoming shorter and longer, and shooting out in rays like the electric flash on the positive electrified conductor. *The resemblance of this phenomenon to the polar light of the earth* is too manifest to any one who may take the trouble to read these lines. The iron sphere became in this way a *terrelle* analogous to Barlow's."

As shown in our previous article, the so-called odic flame, though invariably accompanying, was found to be not identical with, that enveloping *aura* of the magnet which has the peculiar property of attracting iron. These odic flames were emitted alike by crystals, by vegetable and animal organisms of all kinds, and especially by the human hand;—it was also generated by chemical action, heat, light, &c. But though when obtained from either of these latter sources, it was not accompanyed by the slightest perceptible force of attraction for iron filings, or for the magnetic needle, it always exerted the same influence, in proportion to its quantity, upon the sensitive human nerve, producing cataleptic spasms, and other effects identical with those accompanying the processes of Animal Magnetism, so called. The terrestrial globe being an electro-magnet on a large scale, (whose odic luminosity as the foregoing experiments seem to render more than probable) constitutes the phenomenon of the aurora borealis; the question naturally arises, may not the electro-magnetic (and hence odic) currents which are constantly passing between the equator and poles of the earth, be attended with more or less influence upon the nervous constitution of man, producing health or disease, according as specific conditions are observed or disregarded? That the reader may have a solution of this important question we are prompted to submit some interesting facts which occurred to Reichenbach, at an earlier stage of his investigations.

M. Schuh, a scientific gentleman, who sometimes assisted Reichenbach in his experiments, had contracted the singular habit of regularly turning himself in bed every morning when he awoke, so as to place his head where his feet had been during the night, after which he always went to sleep again. "This sleep was always more refreshing than all the preceding night's sleep, contrary to the general rule, according to which the earlier sleep, especially that before midnight, is the most strengthening. When he had not this after sleep, he felt weaker all day; and thus this strange custom had, for a long time, been a necessity to him. I inquired," continues the author, "about the position of the bed, and learned that the head was turned toward the south, and the foot toward the north. By my advice he assumed the opposite position when he went to bed at night; that is, with the head to the north, and the feet to the south. From this day forward he never found the morning after-sleep necessary; the sleep was good and strengthening; and he thenceforward discontinued the custom."

Subsequent observations and experiment proved that positions in reference to the magnetic meridian had still more decided effects upon those cataleptics and other sensitive persons through whom our author made most of his discoveries. One of them, (Miss Nowotny,) was found to have instinctively chosen a sleeping position almost exactly north and south, with her head toward the north. It had been necessary to take down a stove in order to allow her bed to be placed as she desired. She was with great difficulty, even for the sake of the experiment, persuaded to lie for a short time with her head toward the south; and when she finally did so, she soon began to complain of discomfort, "turned over restlessly; her face became flushed; her pulse rose, became fuller; flow of blood to the head increased the head-ache; and discomfort of the stomach soon ensued. The bedstead of the patient was quickly turned round again, but stopped when moved a quarter of a circle. She now lay in the magnetic parallel, with her head to the west. This direction was completely unbearable to her, and still more adverse than the south-north position she had just left." On being restored to her accustomed position, with her head to the north, these uncomfortable sensations immediately decreased, and in a few minutes had left her entirely. It was observed that during her altered positions, all her diseased conditions assumed a different form, and the effects of the action of the magnet and other things upon her, were the reverse of what they had been.

After speaking of the repetition of these experiments upon the same subject and upon other persons, with like results, the author says: "All these patients now recalled to mind how uncomfortable they always were in church, although they knew not the reason why. Catholic churches are all built from west to east, so that the congregation, before the altar, are in the west-east position; therefore, in that direction which is the most unsupportable to the sensitive. In this situation, therefore, they all often fainted, and were obliged to be carried out of the church. Miss Nowotny subsequently could not bear to walk in the garden or in the streets from west to east, for any length of time."

This sensitiveness to different points of the compass was more fully explained by subsequent researches. By a series of interesting experiments, which we have no room to describe, it was fully demonstrated that the human system, in respect to its inherent so-called odic influence, is *paralized*, both vertically and transversely, and that its different general divisions are in positive and negative relations to each other, and to the different poles and quarters of the earth. Now, as it is known that two positives or two negatives in magnetism repel each other, whilst a positive and negative attract, the same law may, in some sense, be supposed to hold in reference to this new imponderable, which accompanies magnetism. The reader, then, will have no difficulty in conceiving why different positions of the human system with reference to the magnetic meridian, should, in the sensitive, affect the vital currents and produce the symptoms which Reichenbach discribes in the subjects of his experiments.

The physiological bearing of these facts appear to us of great importance, and the subject certainly deserves the careful investigation of medical men. Who knows but that many who are now subject to broken and unrefreshing slumbers, to head-aches, convulsions, catalepsy, or other derangements of the vital forces, might be relieved, either wholly or in part, simply by a change in the position in which they are in the habit of lying or sitting? And might not the suggestion here afforded, relative to the proper sleeping position, be, with great benefit, carried out in hospitals, and especially in

lunatic asylums, where persons sensitive to the influence would be most likely to be found? Doubtless the majority of persons, especially those in perfect health, would be unable to detect any peculiar influence as arising from any particular position of the body during slumber; yet if these alleged discoveries of Reichenbach are real, a habitual violation of this magnetic law, for a long series of years, might be expected to effect, in some degree, almost every one, as to the health both of body and mind. I am induced to bring out this point thus prominently, because I have myself, (as I conceive,) derived considerable benefit, within the last two years, from an observance of the law here unfolded, and found that a position with the head to the south is generally attended with unrefreshing slumbers, which are succeeded with a heavy sensation in the head, and a diminuition of the natural activity both of the mind and the body. Let observations as to the effects of these positions, on different constitutions, be made, and their results be recorded for the benefit of mankind.*

We will introduce one more point, and then take our leave, for the present, of these interesting researches. It was discovered, beyond doubt, that the odic influence was generated by the light of the sun, the moon, the planets, and the fixed stars. The mode of experimenting, with reference to this question, was briefly as follows:—A young woman (Miss Reichel) nearly in perfect health, but whose vision and other senses had from childhood been exceedingly acute, was placed in a darkened recess or closet. Through the keyhole of the door, the end of a wire, thirty feet long, was extended to her. After some ten minutes, and when she had become quite accustomed to the wire, and the darkness, the other end of the wire was successively attached to different metallic plates, which were pushed out into the rays of the sun, or any other luminary whose influence was designed to be tested. In less than a minute there would arise before her eyes, from the end of the wire, a slender column of flame, which, in some instances, extended to the hight of a foot, and was about three-quarters of an inch thick. This flame invariably disappeared when the plate was withdrawn from the rays of the sun, or other luminaries; and as the young woman, from her position, could not know what change was made in the oft-repeated experiments, but could only describe their effects when she had anything to describe, the operator justly considered the test as entirely conclusive.

The young woman also observed that a perceptible *aura* was emitted from the end of the wire, which was cool when the light falling on the metallic plate was from the sun or stars; warm, when it was from the moon or planets.

The inquiry subsequently suggested itself to our philosopher, whether particular portions or *constellations of the heavens* might not exert an influence upon this exceedingly sensitive subject, sufficiently distinct to be discernable. He conducted her several times, at different hours of clear calm nights, to the top of a hill in the neighborhood of Vienna; and, on careful observation, she declared that she felt decidedly different influences as coming from different quarters of the heavens. In general it appeared that soon after sunset, the west, and before sunrise, the east, were especially cool; the variations of temperature revolving horizontally from west to north, and thence to east, as the hour advanced. She spoke particularly of the milky way, the group of Pleiades, the region of the Great Bear, and some other groups of stars, as affecting her with a cooling sensation, and said that all the stars together "acted upon her, in combination, like a rather weak magnet, not merely in front, but behind, upon the spine; principally, however, upon the head, where she was most highly sensitive to all magnetic influences." From the whole of these, and other facts disclosed in his investigations, the author concludes that we not only stand connected with all terrestrial matter, by a hitherto unsuspected reciprocation, but that "the stars, also, are actually not altogether without influence upon our sublunary, perhaps even practical world, and the proceedings of many heads."

All popular and long-cherished ideas, into whatever *excesses* they may have been carried, may be suspected to contain within themselves a germ of truth; and here we find the germ of truth which, perhaps essentially misconceived, and misapplied, has served for the development of that age-lasting structure of predominant fancy and superstition, *Judicial Astrology*.

We commend the work, a very small portion of whose contents have thus been brought under review, as among the most interesting and important scientific publications of the day. W. F.

* I am authorized to say that the proprietors of this Journal will be happy to open their colums for the record of any interesting facts tending to the illustration of this subject.

# Agricultural Department.

## THE CHERRY.

The Cherry was originally from Asia, and was brought into Italy, sixty-nine years before the Christian Era. The seeds of the cultivated Cherry were brought to America, from England and Holland, soon after its settlement. As a pleasant and refreshing fruit, the early season at which it ripens, its juiciness and delicacy make it a general favorite. Nor is man the only being which entertains this opinion, as is evinced by the ravenous cravings of birds for this fruit. While the large and fleshy kinds are very sweet and luscious, others which are more tender and acid are of great value for tarts, pies and many kinds of Cookery. They are stoned and dried, for exportation and winter use.

The Cherry-tree is very luxuriant, and its rapid growth, smooth bark, cleanness, natural beauty of form, without the necessity of much pruning, render it the most desirable of all fruit trees for shade and ornament, and is, therefore, chosen by farmers generally, as a shade-tree. The larger growing sorts of the black cherry, form large, beautiful, spreading heads, and attain the height of fifty or sixty feet. Its early and beautiful blossom, its fruit being the first of the season to ripen, with the rapidity and elegance of its growth, should make this tree supplant the awkward sycamore, and the filthy poplar, as a shade. The aristocratic and venerable gothic elm, and the fresh, cheerful maple, we love to witness in parks and public grounds; but around the farm-house and the villager's cottage, we would see the cherry, the pear, peach and apple—shade, ornament and utility, combined. The cherry, besides its rapidity of growth, requires little care, and from its hardiness, flourishes in almost any climate, however rigorous. It will thrive on a dry gravelly loam. If placed in a very moist and exceedingly rich soil, it is comparatively short lived. To obtain the best fruit, a deep mellow soil, of good quality, should be employed. In very warm valley regions it should stand north of hills, buildings or walls to prevent it coming forward too early in the spring.

The finer sorts should be propagated by budding on seedlings of the common black mazzard. To raise these stocks, select fine fruit allow it to lie two or three days, wash away the pulp and plant the seeds about an inch deep. They will come up in the spring and be ready to transplant in the nursery the following autumn, or spring, about one foot apart in rows. The seedlings should be budded in the month of August following, very near the ground.

The Cherry, as a standard tree, needs scarcely any cultivation. Old trees should have manure occasionally. Little pruning is necessary, which is confined generally to dead limbs and crossing branches. The trees should stand twenty feet apart for vigorous growers. The best varieties of the Cherry live about thirty or forty years, while common kinds often attain twice that age. The Black Heart, Black Tartarian, Knights' Early Black, Oxheart, American Heart, Yellow Spanish or White Bigarreau, and Tradescant's Blackheart, are among the best varities.

Much difficulty is experienced in successfully grafting the cherry, and it should always be performed very early in the Spring before the frost leaves the ground, and before the buds are at all swollen. After this period failures are frequent.

Budding succeeds only with thrifty stocks and well matured buds, which should be done from Midsummer to a month after, as the bark will then peel well. A good share of wood should be cut with the bud to make it live.

FRUIT FOR MARKET.—The man who wishes to make a business of marketing fruit, and obtain a regular income, must plant many kinds. Some kinds will succeed best this year, and others next. An individual in western New York sold, the Newark Advertiser says, in 1840, twenty-five hundred dollars worth of peaches, from about twelve acres. Fruit was scarce that year, and peaches sold at a high price. A large cultivator of the grape, on the Hudson, sometimes sells $5,000 or $6,000 worth of grapes. Another individual, of Monroe Co., N. Y., sold in 1845, four hundred and forty dollars worth of Northern Spy and Roxbury Russet apples, from one acre. A general assortment of the best kinds of fruit will be likely to furnish every year, with good culture, one or more highly profitable crops. In the neighborhood of a large city, fruits always meet with a ready sale and they are highly conducive to health.

## PHRENOLOGY.

BY PROFESSOR SILLIMAN.

[Some years since there appeared an able article on Phrenology in the "American Journal of Arts and Sciences," from the pen of its editor, Professor Silliman, a few extracts from which we give to our readers. We only regret that our space forbids our copying, at this time, the whole article, as it would occupy several pages.]

It appears to me that Phrenology involves no absurdity, nor antecedent improbability. The very word means the science or knowledge of the mind, which all admit to be a pursuit of the highest dignity and importance, both for this life and the life to come, and the appropriate inquiry of the Phrenologist is, whether the mind, with its peculiar powers, affections, and propensities, is manifested by particular organs corresponding with the conformation of the cranium, that defensive armor by which the brain is protected from external injury.

In what part of our frames is the mind manifested by any visible appearance? All will answer, in the features—in the human face divine. But whence comes the intellectual and moral light that beams forth from the eye and from the features? Surely, not from the eye itself, although it is the most perfect and beautiful of optical instruments; not from the fibers of the facial muscles; not from the bony skeleton of the face; not from the air-cells and blood-vessels of the lungs; still less from the viscera and limbs; and with equal certainty, not from the cavities, the valves, and the strong muscular fabric of the heart itself, which is only the grand hydraulic organ for receiving and propelling the blood.

Most persons are startled, when told that the physical heart has nothing to do with our mental or moral manifestations. What! does not its quick pulsation, its tumultuous and irregular throb, when fear, or love, or joy, or anger animates our faculties—does not this bounding movement, shooting a thrill through the bosom, nor the attendant blush, or death-like paleness of the features, prove that the heart is a mental or moral organ? Certainly not; these phenomena only evince that by means of our nerves, the divine principle within us electrifies, as it were, our muscles, and thus accelerates or retards the current of the blood through the arteries, as well as the movement of the muscles themselves, and especially of the heart, which, in relation to the circulation of the blood, is the most important of them all. The physical heart is no more to the mind and the affections, than the hose of a fire-engine is to the intelligence that works the machine, whose successive strokes impel the hurrying fluid along, in a manner not unlike that which attends the circulation of the blood in the arteries.

Where, then, shall we look for the seat of the mind? We are compelled to return to the head, from which intellectual citadel we should never, for a moment, have departed, did not some individuals affirm that they are not sure where their minds reside. Such a doubt fills me with amazement, for I am as distinctly conscious that my mental operations are in my head, as I am of my existence, or that my eyes present to me the images of external things; nay, more, I am equally certain that no merely intellectual or moral operation has its seat below the bottom of the orbital cavities; that all the wonderful and beautiful structure beneath the base of the brain, quite to the soles of the feet, is composed merely of corporeal members, of ministering servants, that obey the will and execute the mandates of the heavenly principle, the representative of the Creator residing within the beautiful dome that crowns our frames, and which, like the lofty rotunda of a holy and magnificent temple, covers the inhabitant beneath, while it looks upward to heaven with aspirations toward its divine author and architect.

The residence of the mind being in the brain, it is not absurd or irrational to inquire whether it can be read in the form of the cranium. If, as has been ascertained by physiologists and anatomists, the bony matter of the cranium is deposited upon and around the membranous envelopes of the brain, which is formed before the skull, then the latter, adapting itself in its soft and yielding state, must of necessity take the shape of the former. If the different faculties, affections, and propensities of the mind are distributed in different organs contained in the convolutions of the brain, and if the energy of the faculties is in proportion to the size and development of the organs, then the external form and size of the cranium will indicate the powers and affections within.

Many persons are alarmed lest Phrenology should produce an influence hostile to religion, by favoring materialism. It is supposed that our organization may be pleaded in bar against our moral responsibility, since, if we have strong dispositions to do wrong and no power to do right, we are like machines, and are not responsible. When there is no intellectual power, as in the case of an idiot, or a subversion of reason, as in the instance of a maniac, it is agreed by all, that the individual is not amenable to human laws. This opinion has no reference to Phrenology, and is embraced by all mankind.

Phrenology stands not in the way of moral and religious influence; but, on the contrary, if the science be true, it indicates, in a manner most important, where and how to exert the discipline of self-control, as well as the right and power of controlling others.

Phrenology is not a substitute for revealed religion—it does not present itself as a rival or an enemy, but as an ally or ministering servant. It is obvious that if all which is claimed for it be true, it is capable of exerting a most important influence on the faculties and moral powers of our race, and with experience for its interpreter, it must form the basis of intellectual philosophy.

The organization of the brain, illustrates the wisdom of the Creator in common with the wonderful structure of the rest of the frame; and, indeed, it has still higher claims to our admiration, inasmuch as the faculties of the mind are more elevated in dignity than those of the inferior members. It appears, then, that Phrenology is neither an unreasonable, an unphilosophical, nor an immoral or irreligious pursuit.

## ANIMAL PHRENOLOGY.

NUMBER VII.

### THE APE, BABOON, AND MONKEY.

The terms, ape, baboon, and monkey were formerly applied indiscriminately to any of the four-handed animals. The ape family should be properly divided into four sections; namely, *apes*, or such as are destitute of a tail, the Orang-Outang and Chimpanzee being at the head; *baboons*, or those with muscular bodies, elongated, or dog-faces, and short tails; *monkeys*, whose tails are generally long; and *sapajous*, or monkeys with *prehensile* tails, that can be twisted around objects, and thereby answer to the animal the purposes of an additional hand.

No race of animals make so near an approach to the human species, in form, action, and general anatomical structure, as the one under consideration. They are found only in the warmest parts of the world, and chiefly in the torrid zone. They abound in Africa, from the Senegal to the Cape of Good Hope, in all parts of India, in the south of China, in Japan, and in South America. In the higher specimens of the ape, as the Orang-Outang, we see the whole exterior strongly impressed with the human likeness; of a size equal, and of strength often far superior, to man. They walk upright, their posteriors are fleshy, their thighs rounded, their legs furnished with calves, and their hands and feet bear a strong resemblance to the human. Their feet, however, being less fleshy and rounded, and the thumb or large toe being shorter and farther removed from the rest, has a less resemblance to the human foot, than is true of the hand. It seems better adapted to grasp the limb of a tree, in their arboreal life, than to walking erect. They find it necessary to use a staff to steady them in walking.

The Orang-Outang, or "wild man" of the woods, is a native of the deepest forests of Sumatra, Borneo, and Malacca, and is remarkable for its size, swiftness, address, and ferocity. In youth it has a rounded forehead, but as it advances to maturity these marks of superior mental power are less manifest. In a state of captivity, having been taken young, they become comparatively docile, but in their adult state, when fully developed, they become mischievous and dangerous.

Dr. Clarke Abel gives a graphic account of the capture of one of these animals, which conveys a good idea of its powerful frame and arboreal habits. He was discovered by a ship's company on the Island of Sumatra, and on the approach of the party, he came down from a tree and made for a grove at some distance, "walking with a waddling gait, sometimes accelerating his motion with his hands." On approaching the trees, "he gained, by one spring, a very lofty branch, and bounded from one branch to another with the swiftness of a common monkey, his progress being as rapid as that of a swift horse. After receiving five balls, his exertions relaxed, and, reclining exhausted against a branch, he vomited a quantity of blood. The ammunition of the party being exhausted, they were obliged to fell the tree to obtain him. But what

was their surprise to see him, as the tree was falling, effect his retreat to another, with undiminished vigor! They were forced to cut down all the trees before they could force him to combat his enemies on the ground, and when finally overpowered by numbers, and nearly in a dying state, he seized a spear, which would have withstood the strength of the stoutest man, and broke it like a reed. It was stated by those who aided in his death, that the human-like expression, and his piteous manner of placing his hands over his wounds, distressed their feelings, so as almost to make them question the nature of the act they were committing. He was seven feet high, with a broad expanded chest, and narrow waist. His chin was fringed with a beard that curled neatly on each side. On the whole, he was a wonderful beast to behold. His hair was neat and glossy, and his whole appearance showed him to be in the full vigor of youth and strength."

THE ORANG-OUTANG.

The Long-armed Ape, in general form, is the next below the Orang-Outang in its resemblance to mankind; is remarkable for the extraordinary length of its arms, and has a more beastly face, feet, and legs. When standing erect, his hands reach to the ground, and all parts of the body being covered with a rough, black hair, and his face, which is flat and of a tawny color fringed with grey hair, combine to give him a very singular and somewhat hideous appearance. In disposition he is, in general, mild and tractable, and measures from three to four feet in hight.

THE LONG-ARMED APE.

The Barbary Ape. This species of the ape has a large head, pouches in its cheeks in which it can carry food, a prominent nose, an ear like a man, and generally goes on all fours. It grows to the hight of nearly four feet, is remarkable for its docility, and by discipline is made to exhibit considerable intelligence. The face is of a swarthy flesh-color, and his hair an olive brown. It is common in Barbary, the lower parts of Africa, and also on the rock of Gibraltar. This has been the "showman's ape" from time immemorial. Though often morose and sullen in confinement, it is social, active, and courageous in its wild state, and remarkably attached to its young.

THE BARBARY APE.

The Baboon family forms the next link in the chain of gradation, and differs from the ape, not only in external appearance, but in temper and disposition. Without any approach to a chin, they have a long face and muzzle like a dog, and while the nostrils of the Orang-Outang open about midway between the mouth and eyes, those of this species are generally placed at the extremity of the jaws. They have large cheek-pouches, tails, and sharp claws, yet the position of the eyes, combined with the similarity of the arms and hands, give to these creatures a striking resemblance to humanity. They are fierce, untractable and formidable, and excessively libidinous in disposition. They are about four feet high when erect, and have a very large chest. They are formed for strength, armed with dangerous natural weapons, and being wild, restless, and impetuous, are among the most formidable of animals; nor can they be restrained in confinement any longer than force is continued; allowed to have their will, they become gratuitously cruel, mischievous, and destructive. They congregate in great numbers, and maintain their position against large parties of men. A troop of them will form a chain extending from their haunts to the garden or field they desire to rob, and toss the fruit from hand to hand till it is lodged in their home in the mountains.

THE BABOON.

Ribbed-nose Baboon. This singular specimen of the baboon is remarkable for its great strength and size, it being about four feet high. Its nose is long, like that of the hog, and marked with ribs on each side of a violet-blue color; a vermilion line arises above the eyes, and passes down on each side over the tip of the nose. Inside, the ears are blue, which shades off into purple and vermilion. The hair on the forehead is long and turns back; its beard dark at the roots, orange in the middle, and yellow at the end; the back and legs covered with short, brown hair, its tail is short, nails flat, and the feet and hands black and naked. Its cheek-pouches are large enough to contain eight hens' eggs at once, which are removed one at a time, broken at one end and eaten. It walks on all fours, and rests as seen in the engraving.

RIBBED-NOSE BABOON.

Small Ribbed-nose Baboon. This animal is about fifteen inches high, its face is flat, of a fine blue color, eyes bright hazel, the cheeks marked with ribs bounded with thick, bushy hair of a greenish color, speckled with black. The hair on the forehead is very long, and runs back to a point on the shoulders; it has a short thin beard of an orange color; the hair on the body is brown, mixed with shades of green; its hands and feet are naked, and it differs from the large ribbed-nose principally in smallness, and most surprising agility.

SMALL RIBBED-NOSE BABOON.

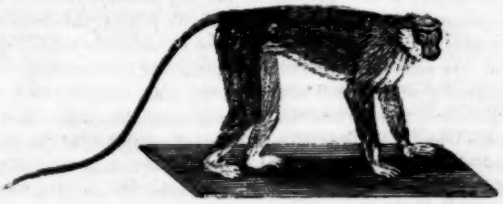
Pig-tailed Baboon. This is a gentle, mild, and tractable animal, very brisk and frolicksome, but has none of that impudence and petulence so peculiar to the majority of his species. It has flesh-colored face and ears, and is least in size of the baboon kind. Its muzzle is large and thick, the hair on the head and back of a deep olive tint; it has hazel eyes and cheek-pouches, and very well formed hands, but its feet and legs are decidedly animal. It is a native of Sumatra and Japan.

PIG-TAILED BABOON.

Dog-faced Baboon. This animal has a very large head and face, a dog-like nose, and a longer tail than any of its kind, and from this affinity to, is often classed with, the monkey. Its face is naked, of an olive color, and the body covered with long bluish-grey hair, freckled with dark spots; on the lower part of the body it is short. The hair on its head is long, separated in the middle, and hangs down on each side of the face. It inhabits the hottest parts of Asia and Africa, lives in troops, and commits great depredations in gardens and cultivated fields; is above five feet high, exceedingly strong, vicious, and impudent. In tracing the gradations of animated nature, there is such an imperceptible gliding of one species into another, that there is great difficulty in fixing the boundaries of one class, so that it shall not run into another.

DOG-FACED BABOON.

Green Monkey. The monkey falls below the baboon in size and strength, and in bodily resemblance to the human race. This monkey has a fine coat of green hair, while his throat, belly, and limbs are white. Like the most of its family, it is brisk and frolicksome, and has a remarkable tendency to imitation. Its home is in the East Indies and Cape de Verd Islands. Its body is thirteen inches, and its tail eighteen inches long.



GREEN MONKEY.

Varied Monkey. This monkey is more frequently exhibited than any other, and is, therefore, better known than any other of the tribe. It has a short, thick nose, lead-colored face, beard long and greenish-yellow, back and sides brown, top-head bright yellow and freckled with black; legs, feet, and tail black. It is very tame, gentle, and familiar, and shows some attachment to those with whom it is acquainted. All the baboons and monkeys before described, have cheek-pouches sufficient to contain food for a day or two, or to serve as a receptacle for food or anything they may wish to hide or carry away.

VARIED MONKEY.

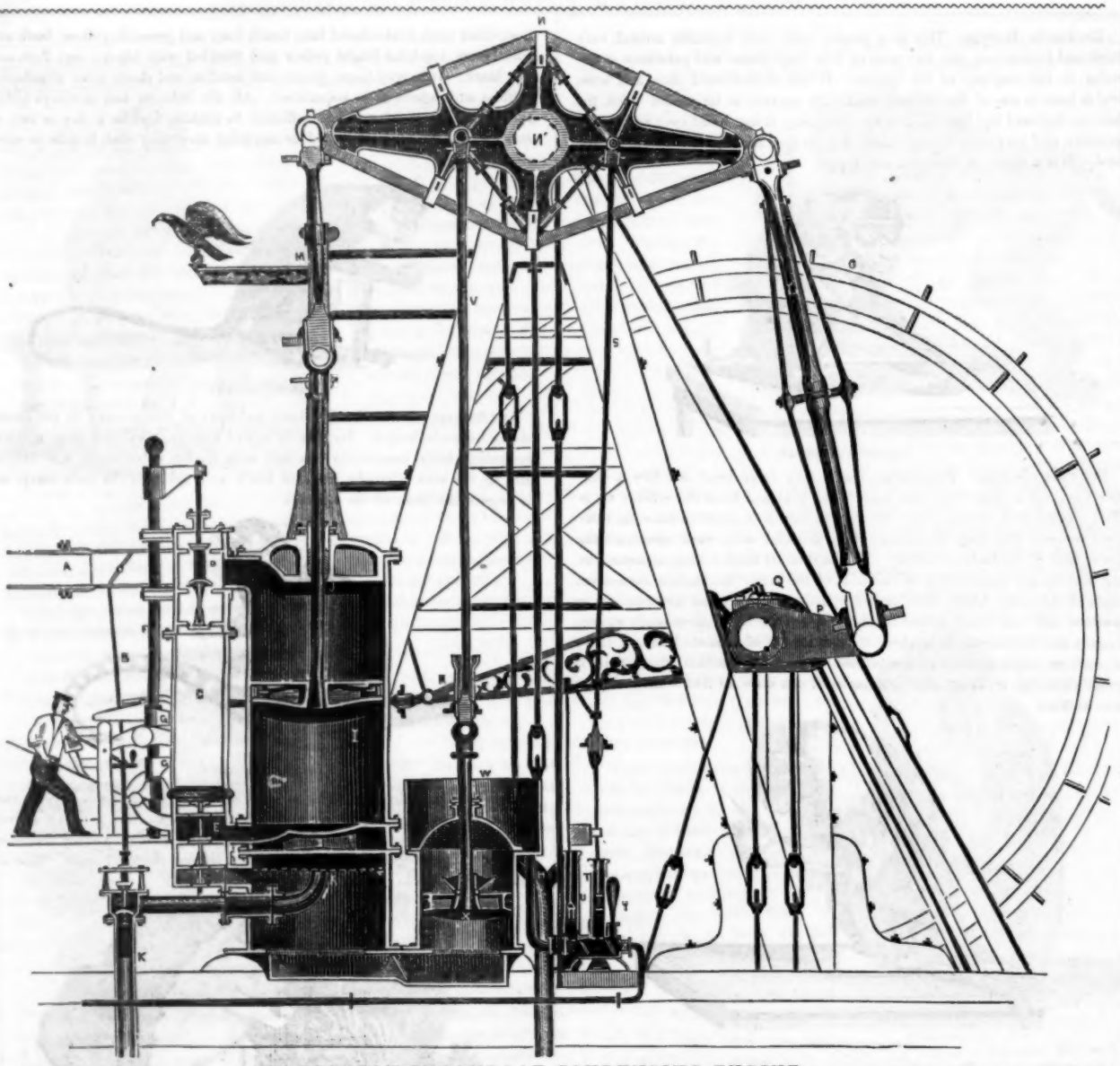
The Striated Monkey. The head and body of this monkey do not exceed twelve inches in length. Its face is naked and swarthy, ears large and like the human, body beautifully marked with dusky, ash-colored, and reddish bars, its tail with alternate rings of black and ash-color, its nails sharp, and its fingers like those of the squirrel.

STRIATED MONKEY.

Mico, or Fair Monkey. This is the most beautiful of this numerous race. Its head is round, its eyes vivacious and spirited, its face and ears a lively vermilion color; its body covered with long hair of a bright silvery whiteness and uncommon elegance, tail long and of a shining chestnut color. This is a native of the banks of the Amazon.

MICO, OR FAIR MONKEY.

We have now laid before our readers some of the more important specimens of the ape, the baboon, and the monkey, but there are very many more, varying in size, color, and habits. They are regarded by naturalists as standing at the head of the animal kingdom in intelligence, as they certainly do in physical organization. This adapts them to a greater variety of motions, and to perform such manual operations, in obedience to intellect, as are totally denied to every other species of animals. To class these animals, especially those below the Orang-Outang and Chimpanzee, and determine which is most like the human race, is very difficult. One has a human face, but an animal body, another has a dog's face and head, and a fine human hand; one has good hands and arms, but inhuman feet, another has many marks of humanity, but the likeness to man, as a whole, is destroyed by a long tail.



AMERICAN STEAMBOAT CONDENSING ENGINE.

# Mechanical Department.

## THE STEAM-ENGINE.

BY ROBERT MACFARLANE.

The steam-engine is the greatest invention ever given to the world, always excepting the art of printing; and if the latter invention gave power to the human mind to achieve new triumphs over ignorance, the former has made the very elements which seemed to defy man, subservient to his will. The power of steam surpasses all the wonders ascribed by our old legends to the genii of the spirit world. It guides the spindle and directs the loom; it hews our wood and draws our water; it forges the huge shaft and fabricates the tiny needle; it makes the pins which fasten our handkerchiefs, and the pens which write our letters. It is the Behemoth of the mechanical world; the huge metal bar of many inches in diameter is drawn by its power into threads more attenuated than those of the gossamer's web. Chained to the car, it enables man to "ride upon the wings of the wind," and it thrusts its mighty trunk down into the deep mine, and from the secret recesses of our globe draws forth its own food. In none of its diversified applications, however, is its power more apparently valuable and important, than in steam navigation. The winds, the waves, and the tide may oppose the noble steam vessel, but onward she plows the billow like some huge Amphibia of the Oolitic age.

The engraving which illustrates this article is, a vertical section of "The American Steamboat Condensing Engine," showing the important interior parts, so as to render an explanation of them as familiar as possible to many who are not acquainted with the same. It is chosen as applied to the Steamboat, because this application of it, is so well known. The moving

power of the engine does not lie in its huge shafts, beams and rods, but in the steam; the different parts of the machinery only direct this power to drive the huge paddle wheels. Steam is the product of heat and water—it is water expanded into 17,000 times its original bulk by heat, and the economy of condensing it in a steam-engine, after having pushed one end of the walking beam upwards, depends upon the nature of steam which can *suddenly* be condensed into its original bulk by cold water, thus creating a vacuum behind the piston and removing all atmospheric resistance to the force applied. The different parts are referred to as follows: A, is the leading pipe from the boiler to supply the cylinder with steam. There is a valve in this pipe to let on and shut off the steam; it is named the throttle-valve, and is operated at pleasure by the engineer pushing up or drawing down the rod B. C, is the steam-chest or box. It is a long cylinder of less diameter than the large one. Every person will have observed two tall cylinders in the engine room of a steamboat in front of where the engine stands; one of these is the steam-chest C, the other (not shown in this view) is the exhaust. The steam-chest is a reservoir to let the steam into the large main cylinder I, the exhaust is to receive the steam after it has acted on the piston. In the large cylinder I, there is what is named the *piston* secured to a strong round metal rod J. This rod passes and works through a stuffing box on the top of the cylinder cover, and is attached by gib and key to the connecting rod M, and that rod is attached by the same devices to the walking-beam N. The walking-beam is secured on an axis which has its bearing in the strong angular timber frame one side of which is shown. The walking-beam is simply a mechanical device (and the best yet contrived) for transmitting the power of the steam from the piston-rod to the crank to turn round the wheel shaft. Having established this connection, it will render the subject easier of comprehension, to go back and describe the action of the steam. The piston is made of large round plates of metal packed in such a way as to slip up and down smoothly in the cylinder, and not allow any steam to escape up from below it, or down from above it. When the piston is moving up, the steam has been let in and is pressing it from underneath, while the steam that pressed the piston down in the former stroke is rushing out before it into a vacuum. The steam is let into and out of each end of the cylinder and opened and closed at the exact periods by valves, (C, only lets the steam into the cylinder,) D, E, are steam ballance-valves, and the dark passages, one at top and the other below, leading into the steam-chest, C, show how the steam gets in. At the present moment the ballance valve D, is up uncovering the steam port, hence the piston is descending and the lower steam valve E, closes the lower steam port. When the piston has performed its downward stroke, the valve D, will close and the one E, open and then the piston takes the contrary direction. The piston would not move backwards and forwards, however, unless the steam escaped from before it. This is done by the exhaust valves, (not seen,) but which are formed and worked in the same way as the steam valves, only the the exhaust communicates with the condenser, while the steam-chest communicates with the steam-boiler. This arrangement and operation are very beautiful. The way whereby the up and down reciprocating motion of the piston rod is converted into rotary motion to drive the paddle wheel, is by the walking-beam N, the connecting-rod L, and the crank P. This crank is just like a handle on the paddle wheel shaft, and the motion of the connecting-rod is akin to that of the human arm turning a wheel with a crank handle. There are four valves, two for the steam, one up, and one down, and two for the exhaust arranged in the same way in a different chest.

The way these valves are operated, is exceedingly simple. There are four upright metal rods placed on a line in front of the steam-chest C, and the exhaust-chest. Each rod works one valve; F, is the one which works the upper steam valve D. They are separate and worked singly. Each shaft has a horn or toe on it and there is a cross shaft with four curved horns on it, one for the horn on each valve lifting rod. To start the engine, the engineer, as is represented in the engraving, puts a lever, or as it is termed a starting bar into a hole in the rock shaft below and the toes on it lift up the valve-rods and allow the steam to enter and escape from the cylinder I, so as to give motion to the piston, up and down. After a rotary motion is given to the wheel shaft, the valves are worked by the engine itself. This is done by the rod R, which is attached to the wheel shaft by an eccentric Q. This gives the rod a reciprocating motion, and it is hooked over the main rocking-shaft to lift up the valve-rods. This rocking shaft will be seen in front of the steam-chest of every steamboat engine; it has two toes on it; one on each side. There is another rocking shaft just like it, so that the two look like one across, only there is an eccentric rod on each side, one working the steam, the other the exhaust-valves. G, G, are toes on the valve-rods. The exhaust, as has been said, is connected with the condenser K, which has a pipe K, passing through the bottom of the boat into the water, and it rises to be on a level with the water line of the vessel. As the steam rushes into the condenser from the exhaust chest, it is met by jets of cold water, and it is here suddenly converted into its original bulk, thus creating a vacuum equal to a pressure of steam of about 13 lbs. to the square inch. The water which rises into the condenser by the injection pipe has to be pumped out by an air pump. X, is the piston of the air pump, and W is its floating top. This pump is worked by a rod V, seen extending upwards and attached to the walking-beam. The waste water is discharged by the pipe H, through the bottom of the boat; a portion of the injection water is returned to the boiler by the feed pump, T, the pipe from which, as seen extending underneath, enters the boiler. This feed pump has an air chamber V, like any force pump; U, is a bilge pump for passing foul water out of the hold of the vessel. These pumps are all worked by long rods attached to the walking-beam, and thus the connection is simple and easy. The mode of working the pumps by the rods attached to the walking-beam, is allowed to be the most perfect of any, hence, the beam-engine, when of great dimensions, is considered to be best. O, is the paddle wheel.

A very good understanding of the action and arrangement of the steam-engine should be derived from the foregoing description. This engine is the same in principle as a large stationary land engine, only the pipes to receive the water, and to pump out the waste, pass through the bottom of the boat in the one case, while in the other, they communicate with a resorvoir of cold water and a canal to carry off the hot condensed water. The exhaust valves of the engine are operated upon in such a way as to be opened a little before the piston arrives at the end of the stroke—this is named the lead, the object of which, is to allow the steam to act more sudden and direct upon the piston. The eccentric which works the exhaust, is therefore placed a little in advance of the eccentric which works the steam rock shaft, so that the steam has commenced to escape on one side, before it enters on the other side of the piston. In working this engine, the steam is not allowed to be entering into the cylinder from the steam-chest during the whole ascent or descent of the piston; it is cut off by the valve closing after one-half the stroke has been made, (sometimes one-third,) when, owing to the elastic nature of the steam, it still presses on the piston, expanding as the space is made for it to do so; this is named "working the steam expansively," and is the means of saving much fuel. There are two cranks, one on each side of the crank-pin—only one is seen in the engraving,—and the connecting rod L, of the walking-beam is secured between the two. Each crank is one-half the length of the cylinder, so that it takes one stroke up and another down of the piston to make one revolution of the wheel-shaft. It will be observed that when the piston has attained to the end of each stroke, it has no power to turn round the crank; and it is also obvious that while the piston has a twofold motion in opposite directions, the wheel shaft moves continually in one direction. The point at the end of each stroke, is termed the *dead* point; a fly wheel is employed to overcome that difficulty in a stationary engine; the paddle wheels of the steamboat serve as flys for their cranks. The

whole motions of a steam engine are graceful and exceedingly simple; but its efficacy depends upon having all its parts well constructed, proportioned and kept in good order. Great attention must be paid to the valves—every one of them must be kept in good order or the power of the steam may be completely nullified. In steamboats, only one large engine is used; in steamships two are employed.

There are three kinds of steam-engines, viz: the low pressure condensing engine; the high pressure condensing engine, and the high pressure non-condensing. The simple difference between the high and low pressure is in the pressure of the steam. The boilers of the low pressure have a pressure of 10 lbs. of steam on the square inch; the high pressure is often 100 lbs., and on the western rivers the pressure is common at 150 lbs. The explosions of steam-boilers are rare in low pressure engines; but no wonder they are so frequent on our western waters, where the boilers have to stand such a pressure. There are, also, different forms of the steam-engine; some are horizontal—this is the most common stationary kind; there is a kind now coming into extensive use termed "oscilating engines." These have their cylinders secured on trunions; they vibrate like a pendulum. Rotary steam-engines have been numerous in modification, but not useful in appplication. A steam-engine, like the one in the accompanying engraving, is about 600 horse-power. Having described the nature, construction and operation of the steam-engine, a brief history of its progress will not be uninteresting.

The mechanical force of steam was known to Hiero of Alexandria, and pointed out by him 120 years before the Christian Era. He constructed a rotary engine, but it never was applied to any practical purpose, it was merely a philosophical toy. It is singular that it never was attempted to be applied to any useful purpose until about two hundred and thirty-five years ago, and it was not improved until more than a century afterwards, so as to be employed economically. In 1615, Soloman de Caus, a French engineer, published a work and described a method of raising water by the force of steam; in 1646, the celebrated Marquis of Worcester published his "Century of Inventions," in which he also describes a mode of forcing up water by heat; in 1690, Papin, an able French engineer, living in London, made two very important improvements, one was to apply the steam to the piston of a pump, underneath it, and the other was to condense the steam in the cylinder of the pump, thus forming a vacuum under the piston, and the atmosphere pressed it down. Papin also invented the safety valve of the steam boiler. In 1711 Newcomen, an ironmaster of Dartmouth, England, and Cawley, a glazier of the same town, constructed an engine upon Papin's principle, only they condensed the steam under the piston by the application of cold water to the outside, which was an invention of Captain Savery. This engine was used for pumping water. All the valves were worked by hand and it was not until 1718 that devices were invented to make the engine open and close them. This invention is attributed to a lazy boy named Humphrey Potter, but it would appear as if this story had more of the air of fiction than fact. The celebrated Smeaton, who built the Eddystone Light-house, afterwards made some improvements, but it was still a single acting and atmospheric engine for half a century afterwards, until the great Watt directed his mind to its improvement.

Let us be somewhat particular about his merits, as they are not generally understood. In 1763, James Watt, a mathematical instrument maker, aged 28 years, was directed to repair a working model of Newcommen's engine for the Professor of Natural Philosophy in Glasgow, Scotland. This model never worked well, but he soon remedied its defects, and in doing so, he made the grand discovery of condensing the steam in a separate chamber, but communicating with the cylinder. The condensing of the steam in the cylinder by the old plan, cooled it down and caused a great waste of fuel; the condensing of the steam in a separate chamber at once reduced the fuel to one-third the quantity. To this improvement he soon added another; that was the air pump which enabled a more perfect vacuum to be formed; then after this he applied the steam to both sides of the piston in the cylinder alternately, just as is represented in the engraving, thus changing the character of the engine entirely—making it truly "the steam-engine," a thing which it never was before. These three improvements produced five times the effect by the same quantity of fuel that had been used before. Being a man of exquisite taste, and a most neat handed and fastidious mechanic, he soon improved all the parts of his engine, especially the packing of the piston and his valves.

After this he invented the parallel motion described by the walking beam, connecting rod and crank; but perhaps the most refined, at least the most philosophic improvement, was his application of the "governor," to regulate the throttle valve, (no governors are employed on marine Engines.) He also invented the Boiler Float, to open and close a valve by the rising and falling of the water to feed the boiler by a self-acting process. It was not until 1759 that an engine of proper dimensions was constructed to test the great value of his improvements. It was an eighteen inch cylinder, and worked very well. It was not until 1775, however, that full success dawned upon his efforts He was then taken into partnership with Mr. Boulton, of Birmingham, England, and they commenced at once constructing engines for pumping the Welsh mines. A great number of those mines had been suspended, but they were now resuscitated; and the full value of the improvements made in the engines, and the generosity of the inventor may be learned from the fact, that Boulton and Watt constructed many engines upon the simple terms of receiving one-third of the fuel saved by these improvements. James Watt so perfected the steam-engine during his life, that it may be said nothing has been added to it since; in fact, it does not yet work up to his theoretical deductions. James Watt was so modest, and so generous and kind in assisting his fellow man, that his memory is both honored and revered by the mechanics of all nations. He built the engine of the Clermont, the first successful steamboat in America, and the engines of our steamboats still preserve the original character of their progenitor. Many great men have lived in the world, and their names blazon many pages of story, but that of the great improver of the steam-engine is but casually mentioned. Many men have left what historians and easayists term "their impress on the age," but no man of modern times, and none but one of ancient days have left such an impress upon the world as Watt. On the top of every escape steam pipe, on steamship and steamboat, (though not employed for that purpose,) may be seen the form of a thistle, as a monumental tribute to the native land of this great man. His genius belongs to the world, and while he lived, his heart beat warm for all mankind. He was born in Scotland, he was highly honored by France, his bones repose in England, and the first engine he built for a steamboat, was given to America.

The steam-engine has been the means of conferring untold benefits upon our race. Without it, the steamboat and locomotive would be unknown, and mankind in civilized countries would be far behind their present state of civilization. It has lifted millions of our race from being the mere slaves of severe manual toil, to more manly positions. The hand and feet no more labor like those of the ox and ass, but at more lightsome employments in which the mind is not crushed by subserviency to the degrading toil of the body. The steam-engine, by doing the severe slavish work of millions, gives them leisure to devote their minds to other and more noble pursuits, while at the same time it adds to the abundance of those things which benefit the very persons for whom it travels on the railroad, or drives the weaver's shuttle.

At the present moment, the steam power of Great Britain is equal to four hundred million of horses; the steam power of the United States, cannot be a great deal less. When we take into consideration that some single locomotives are seven hundred horse power, and some engines in our steamships, one thousand horse power,

each, we will not be surprised at the great amount of such power now employed. When we reflect, that it is now more than two thousand years since it was first attempted by the Grecian philosopher to apply steam, and that it is only about one hundred years since it really came to be applied usefully, and when we reflect upon the mighty wonders it has performed and is still performing—since Watt arose—the great and somewhat romantic question arises in the mind, "what might the world have become by this time had the wonderful capabilities of steam been known and rightly applied by the ancients." There seems to be a prevalent idea abroad, that the steam-engine has attained to perfection, and that some other power is now demanded to supersede it. It is true that the steam-engine is unaltered in a single principle since the days of its great improver; but it has by no means attained to perfection, especially in the matter of economy in fuel. A few years ago, our Docks were covered with pine wood piled up like crag on crag, to supply our steamboats with fuel; no wood is used now—coal has taken its place, with a saving of more than fifty per cent. What future wonders the steam-engine may achieve, we cannot tell; but looking to the past, the future is brilliant with hope. The steam-engine has built a bridge from America to Europe of a ten days' span, and in a few years, it will link the Atlantic which laves our Eastern with the Pacific which washes our Western coast, by a tri-day's summer journey.

## Home Department.

### INTEGRITY.

[As an illustration of CONSCIENTIOUSNESS and BENEVOLENCE, we introduce an interesting chapter in the life of a merchant, from an English exchange, which proves the great truth, that "honesty is the best policy," and that in the end, unbending integrity and honor is the sure pathway to success. The world has virtue enough to appreciate truth and honesty, and sufficient justice to reward it. We cordially commend this story to all young persons who are beginning the great career of life on their own account.]

"By-the-by, James, have you advised Messrs. Lawrence and Parkinson of the error in the last chest of indigo we had from them?" said Mr. Watson, a much respected merchant in Glasgow, to his principal clerk.

"No, sir," replied the young man, smiling and looking very clever and knowing; "the mistake being their own, and in our favor, I thought it as well to let them find it out themselves. They wouldn't have put us right under similar circumstances."

"But, James, if they never find it out, what then?" inquired Mr. Watson.

"Why, then, sir," said the former, again looking particularly knowing, "we shall be gainers by the sum of £7 10s.—the amount of difference between Lawrence and Parkinson's invoice, and the actual weight of indigo."

"What, James!" exclaimed Mr. Watson, with gravity approaching to sternness; "and do you imagine I would pocket £7 10s., or any other sum so gained—that I would take advantage of an oversight on the part of those with whom I deal, to rob them?"

"They would not hesitate to do so by us, sir," replied the young man, blushing, and a good deal disconcerted that he was advocating an unjust cause."

"I do not believe they would, James," said Mr. Watson. "I have dealt with Messrs. Lawrence and Parkinson for many years, and have ever found them honest and upright in their transactions. At any rate, what they would do under similar circumstances can be no rule for me. I know what I ought to do, and that shall be done. Take a sheet of paper, James, and write as I shall dictate. But, pray tell me what is the amount of the error in the weight of the indigo?"

"Twenty pounds, sir," replied the young man. "They have invoiced us 108 pounds instead of 128."

"So," said Mr. Watson, who was now engaged with his pencil in calculating; "twenty pounds at 7s. 6d. is £7 10s. Now, then, James, write. Date. Gentlemen—I have your favor of the 24th inst., with invoice of chest of indigo. Amount, £40 10s. On re-weighing the chest, I find you have committed an error against yourself of twenty pounds; the chest weighing 128 pounds, instead of 108, as invoiced. Say, twenty pounds at 7s. 6d. is £7 10s., which makes the whole amount £48, instead of £40 10s., and the former sum I now remit you, which please acknowledge at convenience. I remain, &c."

On the third day after the occurrence, Mr. Watson entered his counting-house with an open letter in his hand, which he threw down before his clerk, with an air of honest exultation, saying, "there, James, read that. There's a letter worth a thousand pounds of indigo; at least, so I value it; and his honest countenance beamed with rectitude.

James read—"Dear sir, we have to acknowledge with thanks, the receipt of your favor of the 29th ult., with remittance of £48 for chest of indigo, shipped for you per Isabel of Liverpool. We note your correction of error in weight of said chest, and beg to express a deep sense of obligation for your honorable conduct in the matter, although it is but what we should have expected from the scrupulous integrity which has marked your dealings with us. We deem it but right to add, that the error would never have been known to us had you not pointed it out. We are, &c."

While Mr. Watson's clerk was reading the letter, a gentleman, a merchant in that city, with whom Mr. Watson was slightly acquainted, entered the counting-house and requested a few minute's private conversation with the latter. They retired into an adjoining room. "Mr. Watson," said the visitor, whose name was Bremner, "finding that I can do no good here, I intend shortly proceeding to South America, to which I have been invited by a friend, who has gone there before me. With this view, I am now converting everything I have into money, to carry out myself and family, with some small matter in the shape of an adventure. To accomplish this object, I am obliged to make large sacrifices in the disposal of my effects. Most ruinous! But I cannot help myself, and am without any other resource—any other means of raising money. Now, sir, my purpose in calling on you is to say that I have a quantity of rosin to dispose of, which, as I must sell at a loss, you may have at a bargain if you incline to become the purchaser, and I shall be greatly obliged to you besides."

"I will call at your warehouse in an hour hence, and take a look at the article, Mr. Bremner," said Mr. Watson, but without adding more.

Punctual to his appointment, Mr. Watson called at the time specified, examined the rosin, and being satisfied with the quality, inquired the price.

"I must, of course, make a sacrifice," replied Mr. Bremner to this inquiry. "I cannot expect you should, under the circumstances, give me anything like full value for the article. Let us, say, then 3s. 6d. per cwt.

"Send the rosin over to my warehouse, Mr. Bremner," said Mr. Watson, "and call on me to-morrow forenoon, at eleven o'clock precisely, for settlement," and without a word of further remark, left the premises.

On the following forenoon, at the hour appointed, Bremner called for payment for his rosin, when, on counting over the sum handed him by Mr. Watson, he found it to exceed, by £9 odd, the amount of his account.

"You have made a mistake, Mr. Watson," said Mr. Bremner. "Here is £9 5s. more than I have a right to."

"No mistake at all, sir," replied Mr. Watson; "I have been looking over the prices, current, and find that the value of such rosin as that you sold me, is 5s. 6d. per cwt., and it is at that rate I propose to pay you. I cannot take advantage of your circumstances, Mr. Bremner, to take your property below its fair value. I could not do so to any man. I have ever reckoned it a species of dishonesty, exceeding almost all others in meanness and heartlessness, to take advantage of a man's necessities to rob him by giving him less for his goods than they are worth."

"But, sir," said Bremner, with honorable feeling, "I offered you the rosin at 3s. 6d. It was a bargain."

"I deny that, my good sir," replied Mr. Watson smiling. "There always are, you know, two to a bargain. Now, although you said 3s. 6d., I did not. I said nothing at all on the subject. So put up your money my friend, and say nothing more about it."

Overcome by such an unusual instance of justice and generosity, Bremner's heart filled; a tear started in his eye; he seized Mr. Watson's hand—pressed it. He could not speak for some seconds. At length he uttered a half audible "God bless

you," shook the hand he held warmly, and rushed out of the counting-house.

It was about fifteen years after the period when the little incidents just recorded had taken place—incidents, we may add, of frequent occurrence in the life of the worthy person whose humble history forms the subject of this paper, that he entered his counting-room one day with an air of despondency in his look and manner that was quite unusual with him, for he was naturally of a remarkably cheerful temper, and which at once gave his confidential clerk—the same of whom we have formerly spoken, and who was still in his service—notice that Mr. Watson had heard some unpleasant intelligence of some kind or other; and it was so. Throwing down a letter which he had got that morning at the Post-office—"There Mr. Wood," said he, "that is the result of my unfortunate speculation in those unlucky consignments on Hobart Town. The market there is overstocked by large and unexpected arrivals of goods of the same description with those I sent out, and the consequence is, they are selling below prime cost. It is ruin—utter ruin." And Mr. Watson, leaning his elbows on the desk, covered his face with his hands, and in this attitude gave way to the painful thoughts to which the bad news of the morning were but too well calculated to give rise. In the meantime, Mr. Wood proceeded to the usual perusal of the letter which had been laid before him, and found it to be from Mr. Watson's agents at Hobart Town, intimating that they could not dispose of his consignment. Had it arrived but eight days sooner he would have cleared several thousands by the speculation.

"Very unfortunate," said Mr. Wood, throwing down the letter.

"Yes, very unfortunate," repeated Mr. Watson, raising himself up from the desk as he spoke. "However, I shall be able still, thank God, to pay all my debts, although there will be little left behind. Nobody but myself will suffer by my unfortunate speculation. The satisfaction still remains with me of thinking that I have not, as many others have, been gambling with other people's property."

In saying this, however, the worthy man had not reckoned on the possibility, or rather perhaps, likelihood of any further misfortune of a serious nature. He had not dreamed of the possibility of the bank of ——— stopping payment; yet it did stop payment, and that within eight days after Watson had received the letter above spoken of from his Hobart Town agents, and by this additional misfortune he was the loser to the amount of £5,000. In these unhappy and most unexpected circumstances, Mr. Watson found it necessary to call a meeting of his creditors. Letters were accordingly written to them all, and a day and a place of meeting appointed.

The largest of Mr. Watson's creditors, was the South American house, Messrs. Damson, Rippant & Co., who were the onerous holders of his acceptance to the amount of £3,490, the parties to whom the acceptances had been originally granted having become bankrupts and fled the country. Being wholly unknown to, and never having had any transactions with the firm above named, Mr. Watson looked for no indulgence at their hands. On the contrary, seeing the largeness of the sum he owed them, and the character (as it had eventually turned out) of the original drawers, he thought he had reason to fear that they would be disposed to treat him harshly, and that they would be difficult in the matter of settlement. By and by the day of meeting arrived, and Mr. Watson resolved on attending personally, in order to afford whatever explanation might be demanded. The creditors had all met when he entered the room, and the way in which he was received was very remarkable, and it may be added very unusual under the circumstances. Instead of the cold, stern looks, and constrained civility, which in common cases await bankrupts on such occasions, Mr. Watson was received with smiling countenances. Hands were extended towards him from numerous points around the table, at which the persons composing the meeting were seated, and many encouraging greetings and gracious invitations from individuals to seat himself beside them, marked the high opinion which was entertained of his character by those assembled on the present occasion. The hour of the worthy man's misfortune was, in short, the hour of his triumph. Most of those present were known more or less intimately to each other, but there was one amongst them whom nobody seemed to know, and who had that sort of air about him that marks the entire stranger. This person was observed to look at Mr. Watson with much earnestness, and much apparent interest. But he said nothing, and did not seem disposed to interfere, in any way, with the proceedings.

Having exhibted the state of his affairs to the meeting, and made an offer of compromise, Mr. Watson said those present would see from the statement submitted, and which he trusted he need not say was a faithful one, that he could not possibly offer more than the sum proposed, with any reasonable prospect of its being realized. They would observe, he said, the payment of this compromise included the necessity of his parting with the last remnant of his property. But he gave it up not only without hesitation, but with the utmost readiness. With one exception, all present at once acceded to Mr. Watson's proposal of compromise—most of them without even looking at his statements, so high was the opinion entertained of his integrity.

It was not without emotion that Mr. Watson rose to thank the gentlemen around him for their ready acquiescence to the terms he had offered them. Having expressed his gratitude in such broken phrases as his agitated feelings would permit, Mr. Watson proceeded to say that he deemed it but proper to state that he had still to obtain the sanction of his largest creditors, the Messrs. Damson, Rippant & Co., and if that firm refused their consent, which he thought by no means improbable, sequestration would be taken out, "and the result of this proceeding, gentlemen," he said, "will be utter ruin to me, and serious loss to you."

At this moment the unknown gentleman rose from his seat, and looking towards Mr. Watson with a smiling countenance, said, "Sir, allow me to assure you that you have nothing to fear from the house of Messrs. Damson, Rippant & Co. Of that house I am a partner, and I am here as its representative—a circumstance with which there is connected a little history, which I beg to relate. Mr. Watson, gentlemen," he said, now addressing the meeting generally, "may have forgotten, but there are others who have not, that, about fifteen years ago, a gentleman merchant, in this city, came to him, and under the pressure of peculiar and urgent circumstances offered him a quantity of goods, at a price considerably below their value. Mr. Watson bought the goods, gentlemen, but mark the issue. Instead of taking those goods at the low rate which the seller's necessities had compelled him to offer them, as many who call themselves honorable would readily have done, he handed him over their full value. The person, Mr. Watson," now looking towards the latter, "to whom you acted thus honorably, was, you know, a Mr. Bremner. Well, sir, Mr. Bremner is now the principal partner in our house. He usually resides at Valparasio, but happened to be in London when your letter, announcing your misfortune, reached us. Having a live'y recollection of the incident I have just related, and entertaining the highest opinion of the integrity of your character, as expressed to me in this letter, Mr. Bremner wrote to me—I chanced to be here at the time to attend this meeting, and to offer you not only any indulgence you may require regarding the bills now pending in our possession, but any further assistance which your circumstances may demand. As to your offer of compromise, that we do at once."

Overpowered by this unexpected testimony to his integrity, and the personal kindness it included, it was some seconds before Mr. Watson could make any reply. Nor, when he was able to do so, did he say much, for he was no speechmaker. He, however, did say enough to convince all who heard him, that if he could not speak elegantly, yet he could feel deeply, perhaps the better gift of the two.

Having obtained the consent of all his creditors to his offer of compromise, and having paid the latter, Mr. Watson, in a very short time, found himself in possession of a full and free discharge from all his debts. Three weeks afterwards he received the following letter from Hobart Town:—"Sir, we are very happy to inform you that in consequence of destruction by fire of a large store, in which was an immense quantity of goods of the description with yours, and which are all consumed, we have sold your consignment at an advance on invoice price of nearly two hundred per cent. We have but time, (ship being about to sail) to advise you of this, but shall, within a week or ten days, remit your proceeds with account of sales."

By this unexpected occurrence, namely, the destruction of the store, Mr. Watson was a gainer, by £7,000. On receiving his remittances, he called his creditors, individually, and having made known to each how strangely his fortune had been bettered paid him down the full amount of the debt for which he had ranked on his estate when insolvent.

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He that never changes any of his opinions never corrects any of his mistakes.

# Events of the Month.

## DOMESTIC.

A serious riot took place at Hoboken on Monday, the 26th of May, on occasion of the celebration of the national festival of Pentecost by a large company of Germans. After passing the day in various sports and amusements, towards the close of the afternoon they were assaulted by a gang of rowdies, who broke up their refreshment-tables, destroyed the property of the vendors, and frightened the women and children of the party. The Germans resisted the attack and drove the assailants from the ground, who took refuge at a small public-house in the vicinity. A regular fight now commenced. The Germans succeeded in clearing the house of their opponents, and began to destroy the furniture. The keeper of the house, with his wife, was forced to retreat. He then seized a double-barrelled gun, and fired on the disturbers. The shot took effect on two Germans, who were supposed at first to be killed. The house was riddled from top to bottom, and all its contents demolished. The fighting continued during the evening, and a great number of persons were severely injured. It was at last quelled by the exertions of the police, aided by two military companies from Jersey City.

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A frightful tragedy occurred on the 7th of June, in Roxbury, Mass. A young man of respectable appearance called at the house of Dr. Cumming, a physician of that city, stating that he wished to obtain advice concerning the state of his health. The Doctor being absent on his regular visits, his wife invited the young man to take a seat in the parlor, and await his return. He complied with the request, and taking off his cravat, began to complain of a pain in the side. A little daughter of Dr. C. at that moment ran into the room, when the man drew a razor from his pocket, and rushing upon the child, cut her throat from ear to ear, in the most shocking manner. On hearing the screams of her child, the mother sprang forward to protect her, but was badly cut in the hand while struggling with the assassin. She then fled from the house, accompanied by a female domestic, who was attracted by the noise, the man pursuing them with frantic violence. The neighbors now took the alarm, and rushed to the spot, when the man cut his own throat, and died at once in the street. He was supposed to have been from the State of Maine, and was, no doubt, insane.

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A large Convention on the subject of Woman's Rights assembled at Akron, Ohio, on the 28th of May. The following persons were elected officers of the Convention:—

*President*—Mrs. Frances D. Gage, of Morgan County. *Vice-Presidents*—L. A. Hine, Mrs. Ackley, Mrs. Swift, Miss Webb, Mrs. Celia M. Burr, Mrs. Mary Conner, Mrs. Mary Whiting, and Mrs. Severance. *Secretaries*—Mrs. H. M. Tracy, Mr. Marius R. Robinson, Mrs. Sallie B. Gove.

*Business Committee*—Mary A. W. Johnson, Mrs. Robinson, Dr. A. Brooke, Mary Stanton, Dr. Webster, Mrs. Swisshelm, Jacob Heaton, Mrs. Baker, Mrs. Townsend, Dr. K. G. Thomas, L. A. Hine, Maria Giddings, Mary Gilbers, Betsey Cowles, Jas. W. Walker, Cordelia Smalley.

On taking the chair, the President made an able and appropriate address, stating that what woman now asks is a restoration of those rights which have been extorted from her, in order that she may develop her nature and fulfil her mission. If it be said that woman's position is now all that her natural wants and emotions require, let it be answered that this large assemblage proves the contrary, and that woman possesses aspirations that are not met. If it be said that we are a body of discontented spirits, seeking to overturn established order, and disturb the public peace, let it be answered that all progress has grown out of discontent, and all reformers charged with disturbing the public peace. Jesus Christ was discontented with the then existing order, and was martyred as an enemy of order. Letters were read from Mrs. C. I. H. Nichols, of Vermont; Mrs. Lydia Jane Pierson, of Pennsylvania; Mrs. L. N. Fowler, M. D., of New York; Mercy L. Holmes, on behalf of the Half-Yearly Meeting of the Friends of Logan County, Ohio; Mrs. E. C. Stanton, Mrs. P. W. Davis, and Mrs. Wilson. A strong report on the Relation of Woman to Education was read by its author, Mrs. Emily R. Robinson.

Among those who took a prominent part in the debates of the Convention were Mrs. Swishelm, Mrs. Coe, Mr. Robinson, Mr. Baker, Mr. Tracy, and Miss Sarah Coates.

A preamble and resolutions were adopted by the Convention, embodying the views of the members, of which the most important are as follows:—

Inasmuch as it is self-evident that Woman has been created with as high intellectual and moral endowments and subjected to similar necessities as Man, it is also self evident that she is possessed naturally of a perfect equality with him in her legal, political, pecuniary, ecclesiastical, and social rights; therefore—

1. *Resolved*, That the inequalities which manifestly exist in the privileges of the sexes, as bestowed or allowed by institutions or customs, demonstrate, in their creation and perpetuation, the practice of criminal injustice on the part of Man, and in her unresisting toleration of them, a reprehensible submissiveness on the part of Woman.

2. *Resolved*, That as the unjust distinctions between the sexes, which vitiate all known civil and ecclesiastical institutions, and so large a proportion of legislative statutes and social usages, have received an apparent consecration, in the opinions of a large majority of mankind, by their antiquity, and the blinding influence of custom, we can rely alone for their correction upon such means as will enlighten public sentiment, and improve public morals; and this we can only hope to achieve in a gradual manner, though in a constantly increasing ratio.

3. *Resolved*, That as the religious instructors of the people exercise a most potent influence in moulding public sentiment, we call upon them, as they would desire to promote a religion which is pure and undefiled, to afford special instruction in those principles of natural justice and equity on which alone all true religion rests, and to point out the violation of them in those oppressions which are endured by the female sex.

4. *Resolved*, That as the periodical press possesses an equal, if not superior influence with the pulpit, in giving shape to that public sentiment which sustains all our political, ecclesiastical, and educational relations, and general usages, we ask the conductors thereof not only to tolerate, but to promote, and urge, through their columns, the investigation of this subject.

5. *Resolved*, That as the main hope of a beneficial change, and effectual reform of public evils, depends upon the direction given to the mind of the rising generation, we urge upon all teachers, upon all parents, and especially upon mothers, the duty of training the mind of every child to a complete comprehension of those principles of natural justice which should govern the whole subject of Human Rights, and, of course, Woman's Rights, and to an accurate perception of those departures from them in human institutions and laws, which necessarily oppress the female sex primarily, and thereby injure man as well as woman ultimately.

6. *Resolved*, That we demand an immediate modification or repeal of all constitutional provisions and legislative enactments which create a difference in the privileges of individuals in consequence of a difference in sex.

7. *Resolved*, That Labor is a physical and moral necessity, binding upon all, of both sexes; but as many females—especially the seamstresses—might improve their condition by the formation of Labor Partnerships, in which each can obtain all that their labor can command in the market of the world, we earnestly invite their attention to this subject, and solicit, on their behalf, the sympathy, encouragement, and patronage of the public.

The convention was in session for two days. The discussion called forth, during that time, was of a very interesting character, and showed a high degree of ability.

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The meeting of the American Association for the Advancement of science, which took place during the month of May, in Cincinnati, was an occasion of great interest for the scientific men in the West. The sessions were held in the Hall of the Ohio Mechanics' Institute, which was well filled with intelligent and attentive audiences. No previous meeting of the Association has called forth more animated discussions, or presented the cause of science in a more favorable and interesting light. The most important communications were by Professor Agassiz, showing the results of his researches upon the Coral Reefs of Florida, and in the various departments of Natural History,—by Professor Peirce, of Harvard University, explaining the theory of the fluid constitution of the Rings of Saturn, with the discovery of an additional number of those satellites,—by Commodore Wilkes, of the United States Exploring Expedition, upon the belt of heated water which has been demonstrated as

surrounding the globe,—by G. W. Foster, United States Geologist, announcing the discovery of an ancient continent in the region of Lake Superior,—and others, who offered papers of great scientific value, but of less popular interest. A liberal subscription was opened by the citizens of Cincinnati for the publication of the transactions of the Association.

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The Real Estate in Virginia, according to the census return, amounts to $278,000,000. The slave property, $147,000,000; other personal estate, $530,000,000.——A colony on the Fourier system has been established near Victoria, Texas, by Gen. John D. Wilkins, an intelligent and wealthy planter of Louisiana. Each member is required to invest the sum of $400, on being admitted to the colony, and receives a share of the avail in proportion to his labor.——The Legislature of Massachusetts has rejected a bill for the abolition of capital punishment. The vote against it in the House was 172 to 97.

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The latest accounts from Lake Superior represent the improvements now taking place in that region, as of an important and encouraging character. Business of every description has commenced with great activity. Every boat from below is crowded with passengers and freight. Three light-houses, for which appropriations were made last summer, are about to be erected, one at Cape River, one at Eagle River, and one at the mouth of the Ontonagon River. The ancient light of the sailors, the moon, and the aurora borealis, by which they steered their course along those wooded shores, will soon give place to more certain guides. The old mines have been vigorously worked during the winter, giving a large product of valuable minerals. Several new mines have been put in operation, and others, which have been discovered in the course of recent explorations, and which present a rich promise, will soon be opened. The Cliff Mine, it is supposed, will ship 1,000 tons of ore during the present season of navigation. The North American and North-West Companies will also ship a large amount, the mineral being of a superior quality, and in a purer state, than any yet taken from the mines. These companies are preparing to erect extensive machinery, with every prospect of a flattering result. The social condition of the country is also making rapid advances. More atttention is directed to agriculture, fertile farms are brought under cultivation, new and convenient houses are erecting, roads are greatly improved, and the mining districts are now able to depend on their own resources for the principal articles of consumption.

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The Mexican Government has made urgent complaints against the United States for neglecting to protect their territory against the depredations of the Indians, according to the provisions of the Guadaloupe treaty. In consequence, vigorous measures have been adopted for the security of the country. Two thousand troops, of the United States regular army, have been stationed on the Mexican frontier; General Persifer Smith assumes the command in Texas, in place of General Brooke; General Hitchcock succeeds General Smith on the West Pacific Division; and Colonel Sumner succeds Colonel Munroe in New Mexico. These officers sustain a brilliant reputation in the army, and have been selected on account of their peculiar fitness for the responsible and difficult service to which they are assigned. The Secretary of War has issued orders requiring a vigorous administration of military affairs at the different stations, and to spare no effort for the protection of the person and property of Mexican citizens. All the troops adapted to service on the frontier, and not on duty elsewhere, have been ordered to the Texan and American lines.

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The new Constitution for the State of Maryland, as framed by the recent convention, has been accepted by the people, by a handsome majority. Among the provisions of the Constitution, are the abolition of imprisonment for debt, the prohibition of lotteries, and the exemption of the homestead from legal process to the amount of $500. The Governor is to be elected for a term of four years, and to receive an annual salary of $3,600. The Judges are to be elected by the people. No person who has been engaged in a duel, either as principal or second, can be a candidate for office, nor can clergymen be elected to the Legislature.

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The prospects of the grain crop in all parts of the country are highly encouraging. The Wheat District of Ohio promises an abundant harvest. In Western New York, Indiana, Michigan, Wisconsin, Pennsylvania, and Maryland, the appearances are equally favorable. In South Carolina, the Tennessee Valley, and the northern part of Georgia, the cotton crop has suffered considerable damage from the coldness of the season.

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An order has been issued by the Commissioner of Pensions, requiring applicants for a re-issue of Bounty-Land Warrants, in lieu of original, that have been lost or destroyed, to enter a case at the General Land Office, in order to prevent fraudulent claimants from obtaining a patent. Public notice of the fact must be given in the newspapers, stating the intention to apply for a duplicate of the warrant, with a minute description of all the facts in the case.

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The Quarterly Report of the Chief of Police shows that the whole number of arrests in the city during the quarter ending March 31, was 7,966; 356 less than the previous quarter. During the quarter, 15,298 persons were accommodated with lodgings at the Station Houses, 568 lost children were restored to their parents, and 251 stores and dwellings, found open, were closed by the police. Beside these, 145 sick or injured persons were aided; 52 fires extinguished by policemen; 272 cattle, and 101 horses found astray, and restored to their owners; and the sum of $9,564 48 taken from lodgers and drunken persons and restored to them. Ninety-nine complaints were made against policemen for neglect of duty, and 2,765 days were lost by the police from sickness. The Chief renews a former recommendation for the establishment of a River Police.

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## FOREIGN.

A terrible earthquake was experienced at Valparaiso on the 2d of April. The first alarm was given at about seven o'clock in the morning, when the heaving of the earth and the rocking of the houses, aroused the inhabitants from their beds, who rushed into the street, in night dresses, and with bare feet, completely overcome with terror. The sick were conveyed on beds to the public square; groups of people thronged the streets, not daring to enter their houses; and a universal panic pervaded the city. All the houses were more or less injured; heavy articles of furniture were thrown out into the rooms; some dwellings were prostrated to the ground; but the loss of life was comparatively small. It was the severest earthquake that has occurred in Valparaiso for the last thirty years. The loss of property is estimated at a million and a half dollars.

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A large coach-maker in Paris has received a commission from the Turkish Government to build fifty omnibusses, for the conveyance of passengers across the Desert.——The Court of Common Council, of London, have presented an address to Lord Palmeston, requesting him to use the influence of the British Government, with the Sublime Port, to procure the release of Kossuth and his companions now in captivity at Kutahia.——The Great Peace Congress is to assemble in London on the 22d of July, and to continue in session for several days.——The Irish exiles are said to find some consolation in their banishment. O'Brien has accepted a situation as tutor, in the family of a gentleman, and Meagher is about to be married to a farmer's daughter, near New Norfolk.——A large number of Prussian officers have combined for the purpose of emigrating to this country. They are aided in the undertaking by the King of Prussia.——A recent decision of Lord Justice Campbell has established the right of foreign authors to claim protection for their publications under the English law of copyright, on works first issued in England.——A uniform system of weights and measures for the whole Austrian Empire is now under discussion in the Vienna Chamber of Commerce. Such a system would be attended with great commercial benefit.——A gentleman at Dundee, who has tried the pendulumn experiment in proof of the rotation of the earth, declares that instead of showing the fact in question, it tends to the magnetic meridian. His conclusions have been confirmed by other scientific experiments.——A writer in the London Morning Chronicle recommends the formation of an Anti-Hat League, for the suppression of the unsightly, uncomfortable, and unhealthy head-covering now prescribed by fashion.——A frightful loss of life has been occasioned near Seville by the explosion of a steam boiler. This took place in the garden of the Duke of Montpensier, at Alcola del Rio. The steam engine was to have been used for purposes of irriga-

tion. On heating the boiler it immediately exploded, overthrowing the building, and burying under the ruins some sixty or seventy persons, who were present at the experiment as operators or spectators. Eight dead bodies and sixteen wounded had been removed from the rubbish when the accounts left.

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Queen Victoria has purchased, at the Great Exhibition, a magnificent tiara of sapphires, and a brooch composed of two large rubies, set round with diamonds, made by the celebrated Parisian jeweller Lemoneire.——One hundred and fifty Hungarian refugees have left Havre for New York, intending to make this country their permanent residence.—— The Papal Government has issued a decree imposing summary punishment on every person who shall endeavor to prevent another from smoking or using tobacco.——The celebrated English novelist, Thackeray, is now delivering a course of lectures in London, on the English Humorists of the last century. The course is to consist of six lectures, embracing the following writers:—Swift, Pope and Gray, Addison, Steele and Congreve, Fielding and Hogarth, Smollett, Sterne and Goldsmith. The lectures are attended by the most intelligent people in London, and excite a great deal of admiration. ——The cost of the present Caffir War, during the first month of hostilities, amounted to £260,000, and it has since cost over £80,000 a month.

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The Duke of Saldanha has been completely successful in his revolt against the existing Portuguese Government, and is now Prime Minister of the kingdom. He entered Lisbon with about 3,000 troops, where he met with a highly enthusiastic reception, the inhabitants disturbing the silence of the night by their loud and protracted congratulations. The Queen and King are kept in the back-ground. They receive little attention in the theaters and public places, while Saldanha, and his followers, are everywhere hailed with tumultuous greetings. Saldanha has stated to the English Minister at Lisbon, that he has no desire to compel the abdication of the Queen, but is determined to maintain her constitutional throne.

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A rumor has been started that the Austrian Government has at length been induced to release Kossuth and his companions from their detention in Turkey, on condition that they shall immediately depart from Europe, and pledge themselves not to return without the express permission of the Cabinet at Vienna. This account, at the present writing, has received no authentic confirmation.

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The usual half-yearly document relative to railway accidents has been printed by order of the House of Commons. In the half year, ending the 31st of December last, there were 123 persons killed, and 188 injured. Nine passengers were killed, and thirty injured from causes beyond their own control; eleven passengers killed, and nine injured, owing to their own misconduct or want of caution; forty servants of companies, or of contractors, killed, and eleven injured, owing to their own misconduct or want of caution; twenty-six trespassers and other persons, neither passengers nor servants of the company; and five injured by crossing or walking on railways; one suicide. The number of passengers conveyed during the half year, amounted to 41,687,919. The length of railway open on the 30th of June last, was 6,308 miles; and on the 31st of December the length was 6,621 miles; making an increase of 313 miles.

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An American gentleman (Mr. Wm. Robinson) has obtained the privilege, for fifty years, of erecting and managing lines of magnetic telegraph in the United Kingdoms of Sweden and Norway. A company has been formed, including some heavy capitalists of this city and Stockholm, and the work of erecting the lines is at once to be commenced. There is reason to expect that a similar privilege will be obtained from the government of Denmark; and in all it is expected that some three thousand miles of telegraph communication will be conferred on the Scandinavian peninsula by Yankee enterprise.

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After the pontifical authorities, by means of foreign troops, had regained possession of the city of Rome, in the summer of 1849, they appointed a commission to examine the accounts and registers of the republican city government. That commission has made its report, and in it are the following words:—"When we undertook to examine the expenditures of the first six months of 1849, which include the period of republican administration, we supposed we were entering upon a perfect labyrinth; but to render homage to the truth, we must declare that we have found nothing which was not regular, and nothing which was marked by an arbitrary character." The republican city government left in the treasury, at the moment of its resignation, the sum of $56,000, notwithstanding the heavy expenses of the siege.

# Miscellaneous Department.

## PHYSIOLOGY IN PITTSBURG.

The following Constitution and the correspondence relating to valuable presents from ladies of Pittsburg to Mr. O. S. Fowler, during his recent course of lectures in that city, will explain themselves.

Pittsburg, *May 22nd*, 1851.

Mr. Fowler—Dear Sir:—In compliance with your request, and by order of the Society, I furnish you with the following copy of the "Constitution and By-Laws" of the "Pittsburg Physiological Society. Very respectfully,

Elizabeth C. Dake, *Sec.*

CONSTITUTION.

Art. 1. This organization shall be called the Pittsburg Physiological Society.

Art. 2. The officers shall be a President, Vice President, Secretary, and Treasurer; together with a Board of Managers, consisting of four, who shall supervise the general interests of the Society. All these shall be chosen quarterly, by nomination.

Art. 3. Individuals may become members upon the recommendation of the Board, and approval of the Society, by paying into the Treasury, quarterly, the sum of twelve and a half cents.

BY-LAWS.

1st. The meetings of the Society shall be held every Thursday afternoon, from three to five o'clock.

2nd. The exercises of each regular meeting shall be in the following order:—

1st. Prayer.
2nd. Reading of the Minutes.
3d. Reading Text-Books, and discussion of the subjects under consideration.
4th. Appointment by the Board of two Readers for the ensuing week.
5th. Transaction of business relating to the interests of the Society.
6th. Adjournment.

3d. Members entering during the exercises shall dispense with all ceremony in the exchange of social civilities.

4th. The Books brought before the Society, and subjects to be considered, shall be chosen by vote of the Society.

5th. No conversation will be permitted during the time devoted to reading; but the Reader may be stopped, at any time, by questions or remarks relating to the subject.

Pittsburg, *May 6th*, 1851.

Mr. O. S. Fowler—Dear Sir:—Please accept the accompanying articles, as a token of our united respects for yourself and wife, and our hearty approval of your course among us; your lectures will long be remembered with pleasure, and we hope with profit by us; and permit us to assure you, sir, you have our warmest wishes for your success, wherever you may labor, in the good cause of human improvement.

Signed by order of the Committe:—

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| Mrs. Watts, | Mrs. Sands, | Mrs. Wallace, |
| Mrs. Wade, | Mrs. Church, | Mrs. Fener, |
| Miss Hagen, | Mrs. Dake, | Mrs. Neeper. |

Pittsburg, *May, 22nd*, 1851.

*To the Members of the Pittsburg Physiological Society:*—

Many thanks for your valuable presents; also for coupling my wife's name with my own. I prize them much for their intrinsic value—I prize them more for their source—the free-will offering of woman. But most of all I prize them as tokens of approbation and encouragement, expressed touching my labors in the social department of humanity. Never again can encouragement be as opportune. In Cincinnati I had made a bold movement, that of delivering lectures before given only to my own sex—the first step of this kind ever taken. My anxiety respecting the result was extreme, never before as great on any subject—anxiety not as to whether my views were correct, for that I knew, nor as to their utility, for I no more doubted their utility than that of the sun—but as to whether they would be sustained—whether the people were ripe for them—whether the time had come when their promulgation would be sustained. The women of Cincinnati said yes, by their golden present, and still richer personal tokens of gratitude. All my audiences said yes, my own judgment and conscience said yes: but I still trembled for the ark. I own my hesitancy might betoken a lack of moral courage. Only myself can appreciate now much I had staked: your letter and presents came just in season, I was near a final decision. Received at any

time, they would have been a valuable encouragement, but received just antecedent to my final determination, and aiding therein, they were peculiarly acceptable. NEVER AGAIN WHILE I LIVE can any presents, any encouragement be as opportune—as useful. No steps as eventful, is it possible for me ever again to take. Never again can I need encouragement as I *then* needed it. To receive this inspiring "go on, sir," at this nick of time, from the soul of woman—and SUCH women—for your equals, as a body, I have not seen in Pittsburg—was an epoch in my eventful life. For them you have my warmest thanks and friendship, for you all personally, and for your society as such. For them, accept my whole-souled gratitude, along with the consciousness that your encouragement, thus tendered, will tend to spread abroad these doctrines faster and farther than without it they would have been spread,—for it has deepened my zeal, and strengthened my hands in their promulgation, and thus helped to usher in that millenial glory of which I deem no other instrumentality equally promotive.

God bless you, individually and collectively,

Mrs. Watts, Mrs. Wade, Miss Heyden, Mrs. Sands, Church, Dake, Wallace, Fener, and Neeper. } Yours truly, O. S. FOWLER.

LECTURES ON PHRENOLOGY, BY MRS. THOMPSON.—[We copy the following from the "New London Democrat" of May 18th, referring to a course of lectures delivered by Mrs. Thompson in that place.]

"We take pleasure, great pleasure, in saying, they were the ablest series of lectures to which we ever listened on the subject of Phrenology. As a writer and speaker, Mrs. Thompson is surpassed by few of her sex. She realizes more fully our idea of what the female speaker should be than any other we ever met. She evinces a thorough acquaintance with her science, and has an easy, interesting manner of communicating it to her audience. Endowed with a highly philosophic and brilliant mind, a fine, healthy imagination, with an excellent command of language, she is admirably adapted to her work.

"But fitted as Mrs. Thompson is for the discharge of her duties as a public lecturer, it is clearly evident from her retiring nature, that nothing but an ardent devotion to the interests of the science to which she is giving her time and labors, and a desire to impart a knowledge of its truths to others, would induce her to assume the task. We are confident Mrs. Thompson is destined to rank among the most popular lecturers of our time.

"We understand another course will be instituted on her return to our city, next fall. Our citizens, remembering the enjoyment conferred upon them by the present course, will look forward to the coming one with much interest. At present she is in Albany, whose people are soon to share the favor we have enjoyed. And we would bespeak for Mrs. Thompson, from the citizens of Albany, and all other places she may visit, a liberal patronage, assuring them they will receive more than they give.

"It is with some degree of pride that we refer to Mrs. Thompson, as a resident of New London. The presence among them of a woman of her superior talents and high moral worth, is an honor and blessing to any people. Mrs. Thompson can have the felicity of knowing that, where she is best known, she is most esteemed. While we express our regret at her long absence, she has our best wishes for a pleasant and profitable tour."

[MRS. THOMPSON has a Phrenological Cabinet, with which to illustrate her lectures. She is now located at No. 518 Broadway, Albany, where she will apply Phrenology professionally, when desired. A supply of our various publications may be found at her rooms.

OUR JOURNALS IN ENGLAND.—Mr. Henry Green, of the "Wolverhampton (England) Herald," in a private letter to Mr. John W. Leonard, of this city, says:—"I thank you for the papers you have sent me, particularly the PHRENOLOGICAL and WATER-CURE JOURNALS. I was not aware that America turned out such exceedingly beautiful works as these. Not that I thought America incapable of doing work as well as we; but I was struck with the *superlative excellence* of these Journals."

[We acknowledge the compliment, and rejoice that we have impressed our English cotemporary so favorably. In the course of our progressive improvements, we hope ultimately to attract the attention of the world. Not merely through the "good looks" of our publications, but by the power of mind, reflected through the sciences of Phrenology and Physiology.]

# Varieties.

PUBLIC GRATITUDE.—A New York paper states that in the poor-house of this city is a man dying by inches of old age and neglect, whose *portrait* can be seen in the Governor's room at the City Hall, in a painting placed there as an honor to an honored name, and a relic of the most glorious pages of American history.

[In an age of gold, a man is allowed to perish from the memory of society if he chance to fall into the vale of poverty. He may have been a public benefactor, and become poor, or he may have yielded to Benevolence and friendship, and by endorsing to save friends and their families from ruin, thereby ruined himself. But the man who gets rich is respected, nor does the public ask whether he acquired it by selfish scheming, by grinding the face of the poor; or if he has accumulated his wealth by robbing seamstresses of their just due, or by selling adulterated rum to the slaves of appetite, sent hundreds of poor wives and ragged children to the alms-house. The question is, "Is he rich?" no matter how he got it, he is sure of general respect. When the higher faculties are recognized as they should be, honor, justice, and benevolence will be the standard of respectability. "A jewel in a swine's snout" leaves him a swine still, and wealth without integrity is but gilded poison.]

[THE OPINIONS OF THE PRESS are almost universally in favor of the Journal and the doctrines it advocates. These kindly expressions nerve and cheer us in the good work. The following is from an excellent paper published in Lowell, Mass., called the "*Art of Living.*"]

"It were an idle task for us to write a formal commendation of what is so much superior to our editorship, both in age and literary facilities, as the Phrenological Journal. It is not for the sake of the publishers of this journal, therefore, that we venture a remark in reference to one department of their enterprise. We have no doubt that their subscription list is large enough to secure *their* interest; but for the welfare of society we believe it should be augmented.

"A great many at the present day have the spirit of reform without being fully qualified for their work. They *feel* like "working out their own salvation," and are *zealous* for the moral regeneration of society. Yet, from their ignorance of Human Nature, they are often in the position of one "who beateth the air." Much of their labor is in vain, because they go not rationally to work. We wish we could induce such persons to study Phrenology. The science is just what they need to set them right, and make them efficient teachers in the school of Humanity. A great deal that we hear said about Education, Morality, and Government, is perfectly absurd, and known to be so by every Phrenologist. Yet how few, comparatively, have any claim to this appellation! Not a moiety of our school-teachers or legislators, and not a hundredth part of the mothers in our land, who are the real educators and therefore governers of our Race, have any practical knowledge of the great Science of Man.

"Against these gloomy reflections it is pleasing to observe the steady advance of Phrenology, since its first promulgation in this country, and to mark in its accelerating strides the prediction of its ultimate prevalence. Twenty-five years ago this science was hardly thought of in America. Now not only can the student collect a large library of relevant books, together with a respectable cabinet of illustrations, but we have also a quarto-monthly journal, in the thirteenth year of its age, ably conducted and read by more than a hundred thousand persons. We regard this journal as among the best pioneers of Human Progress. The science it inculcates is sure death to bigotry; and the generosity of its publishers, in furnishing 288 quarto-pages, richly mentalized and embellished, for the low price of one dollar, is both a good indication of the humanizing tendency of their favorite study, and a flattering harbinger of "the good time coming," when the principles of Phrenology shall be known and read of all."

WHO CAN BEAT IT?—There are seven Post-offices within a circle of eight miles from this, (Morris, N. Y.) Our village contains only five hundred and twenty inhabitants, and we poll on an average about four hundred and thirty votes in town. There are four daily, eighteen semi-weekly, one hundred and eighty-five weekly, and one hundred and sixty-five monthly papers taken regularly from this Post-office, making *thirteen thousand seven hundred and forty* papers in a year, and we speak of it with a deal of gratification as also showing the intelligence of the community, that, of this number, *ninety-six* monthlies are from the well known publishers, FOWLERS & WELLS, 131 Nassau-street, N. Y.

[It will be seen by the above, which we clip from the Morris, N. Y. Advertizer,—and we must confess our satisfaction in reference to it—that where people read most, and are, therefore, among the more intelligent, our publications are in greater request than any other. We speak not in self-glorification, but to show that the themes on which our monthlies treat are of the highest practical importance, and are very cheap for the amount and quality of matter they contain. The people who love valuable ideas on the great subjects pertaining to mental and physical happiness give unmistakeable evidence of their wisdom in drawing largely on that bank that pays best.]

THE JOURNAL IN THE WEST.—Allow a *Horticulturist* to express his grateful feelings for the interest you manifest in the cultivation of *fruit*—and long may the "Great West" continue to receive light and truth from your valuable publications.

Yours, T. MCWHORTER.

# General Notices.

### THE NEW POSTAGE LAW.

On the first day of July the new Postage Law goes into operation. By this law the postage on the Journal will be—within 300 miles only 10 cents a year; 1,000 miles, 15 cents; 2,000 miles, 20 cents; over 4,000 miles, 30 cents. Our friends who desire to order books by mail, will not forget that if they *prepay* the postage, or send us the money to do it for them, the postage will be *only one-half* as much as if not paid in advance.

A SUGGESTION TO SUBSCRIBERS.—The publishers will take it kindly if subscribers will, when writing, express their views in regard to the general course of the Journal. They hope to receive the free and candid criticisms of their readers. Likes and *dis*-likes will be equally considered. By this vast combination of INTELLECT pouring in upon us their disinterested impressions, the Journal cannot fail to reflect back upon the readers, the best thoughts of all.

OUR NEW WATER-CURE ENCYCLOPEDIA.—THE PROSPECTUS of this great work may be found in the advertising department.

AS A GUIDE for the use of FAMILIES and PHYSICIANS, it cannot be surpassed. In fact, it is Hydropathy condensed —*multum in parvo*—[much in little.] "The Water-Cure made easy"—"every man his own doctor"—Physiology and Anatomy "boiled down"—and adapted to the tastes and comprehension of all—"great and small"—"the wise and otherwise."

The ENCYCLOPEDIA is elegantly illustrated with hundreds of engravings, showing every part of the human body, and is most beautifully printed. All who obtain and read this work will find it not only a source of instruction, but a money-saving business, for it will teach all how to preserve health, prolong life, and increase human happiness.

# New Publications.

*Report of the Massachusetts Female Medical Education Society, to the State Legislature.*

A highly creditable school—it appears by this report—has been in operation for two and a half years. Its objects are to promote the education of females as professional attendants upon their own sex, especially in obstetrics, and the treatment of the diseases of women and children generally. One great advantage which female practitioners have over men, is the unreserved frankness relative to female diseases, and the necessary absence of that timid delicacy, which must ever exist between the sexes. If women of energy and practical sense can be well educated in this great department, as doubtless this school will do it, we regard it as a movement of progress worthy of the age.

*Life of Clement Phinney.* By D. M. GRAHAM, Pastor of the First F. W. Baptist Church, New York. New York: L. Colby.

This is a well-written book of about two hundred pages, containing an interesting biography of one of the pioneers of the denomination to which the author belongs, and has one new feature which will, ere long, be demanded by the public; namely, a careful Phrenological analysis of the character, in connection with the life and labors of the subject. In addition to this, the author brought the lithographic portrait, which adorns the work, to our office, without hinting the name or profession of the original, and obtained a description of the developments, which are inserted verbatim, furnishing, with the author's analysis, double evidence of the truth of Phrenology, and its essential importance, as connected with biography.

# To Correspondents.

E. G.—If you will look at the new postage law you will see that *prepaid* letters are only three cents, whereas unpaid letters are, as before, five cents.

We have received letters rom the following persons, which remain unanswered for want of sufficient directions.

SARAH E. CARTER, no post-office named.

A. A. SMITH, MOON TOWNSHIP, no State given.

H. C. STODDARD, AUBURN, no State given.

M. F. G.—You neglected to put the name of either *town*, *county*, or *State* in your first two letters, and this is the reason why your Journal was not sent before. Be careful hereafter, to give the *full* address at the head of your letter, for this is one of the most essential parts of a letter.

# ADVERTISEMENTS.


FEMALE MEDICAL COLLEGE OF PENNSYLVANIA.—The regular course of Lectures in this Institution will commence on Monday, September 1, 1851, and continue four months.

FACULTY.—N. R. MOSELEY, M. D., Prof. of Anatomy and Physiology. ABRAHAM LIVEZEY, M. D., Prof. of Practice of Medicine. JAMES S. LONGSHORE, M. D., Prof. of Obstetrics and Diseases of Women and Children. C. W. GLEASON, M. D., Prof. of Institutes of Medicine and Surgery. M. W. DICKERSON, M. D., Prof. of Materia Medica. DAVID J. JOHNSON, M. D., Prof. of Chemistry. HANNAH E. LONGSHORE, Demonstration of Anatomy.

Degrees will be conferred and Diplomas granted to the successful candidates as soon as practicable, after the close of the course of Lectures.

FEES.—To each Professor, $10 00; Matriculation fee, paid only once, $5 00: Graduation fee, $15 00.

For further information, apply personally or by letter, post-paid, to N. R. MOSELEY, M. D., Dean of the Faculty, No. 229 Arch-street, Philadelphia. jy3t

CENTRAL MEDICAL COLLEGE, ROCHESTER, N. Y.—The next annual course of Lectures in this Institution will commence on the first Monday in November, 1851, and continue sixteen weeks. In issuing this announcement, the Board of Trustees have the gratification of adverting to the unparalleled success of the School during the past six courses of instruction, as affording undoubted evidence of its appreciation by the public, its permanent establishment, and future prosperity. The Faculty have received renewed assurances from that portion of the profession among whom their labors have been cast, and who have had an opportunity of judging, that their course meets their cordial approbation, and will be sustained.

Central Medical College is permanently located in the city of Rochester, which, from its central position, convenience of access, large population, wealth, and morality, must be acknowledged as the most desirable location in the State. In consequence of the number of ladies who have attended during the last three terms, and at the request of others who propose attending the next session, the Board of Trustees have established a Female Department, which is in charge of Mrs. L. N. FOWLER, M. D., who, from her spirit of investigation and scientific and medical acquirements, has obtained a wide-spread and merited popularity.

FACULTY.—L. C. DOLLEY, M. D., Professor of General, Descriptive, and Surgical Anatomy; LEVI REUBEN, M. D., Professor of Physiology and Forensic Medicine; O. DAVIS, M. D., Professor of Obstetrics; S. M. DAVIS, M. D., Professor of Principles and Practice of Physic; W. W. HADLEY, M. D., Professor of Materia Medica, Therapeutics and Pharmacy; A. K. EATON, A. M., M. D., Professor of Chemistry; W. BEACH, M. D., Emeritus Professor of the Principles and Practice of Medicine; J. H. TILDEN, M. D., Demonstrator of Anatomy; LORENZO N. JONES, Janitor. *Female Department:* Mrs. L. N. FOWLER, M. D., Professor of Midwifery and Diseases of Women and Children. FEES.—Aggregate cost of Professor's Tickets, $60; Demonstrator's Fee, $5; Matriculation Fee, $5; Graduation Fee, $15. Good Board can be obtained at $2 and $2 25 per week. Graduates of Medicine in reputable Colleges, Clergymen, and Theological Students will be admitted to the Lectures on the payment of the Matriculation fee. Students are advised to furnish themselves with text book—Old School works as well as Reform publications. All will be consulted eclectically. For further information address WM. W. HADLEY, Dean of the Faculty, Rochester, N. Y. jy1t

BLAKE'S PATENT FIRE-PROOF PAINT.—The original and only genuine article that can be sold or used without infringing my Patent, and which, in a few months after applied, turns to SLATE or STONE, forming a complete ENAMEL or COAT OF MAIL, over whatever covered, bidding defiance to fire, water, or weather. It has now been in use over seven years, and where first applied is now like a stone.

Look out for WORTHLESS COUNTERFEITS, as scores of unprincipled persons are grinding up stone and various kinds of worthless stuff, and endeavoring to sell it as Fire-Proof Paint. I have recently commenced three suits against parties infringing my rights, and am determined to prosecute every one I can detect. The genuine, either in dry powder or ground in oil, of different colors, can at all times be had at the General Depot, 84 Pearl-street, New York, from the patentee, WM. BLAKE. jy6t

A NEW INVENTION.—A Patent was issued to E. B. Forbush, of Buffalo, September 3d, 1850, for improvement in Clamps for holding paper in writing and drawing, which improvement, to lawyers, clergymen, editors, literary persons, letter-writers, reporters, commercial men, travelers, and scholars learning to write and draw, is *invaluable* for its *convenience* and *utility*. It needs only to be *seen* and *used* to be appreciated. The principle of the invention, may be applied to any style or variety of portable writing desks or portfolios. They may be made and furnished of different qualities, varying in price from $2 00 to $25 00.

RIGHTS, to manufacture and sell the invention in different States and Cities, will be sold on *very reasonable terms*, so that the purchaser with proper industry and perseverance, may secure a *pecuniary fortune*.

Every person who regards a *healthy position of the body, convenience or ease* while writing, will purchase this improvement. For further information, address E. B. FORBUSH, Buffalo, New-York.—my 6t

SELPHO'S ANGLESEY LEG—Made solely by WM. SELPHO, 24 Spring-street, New York.—The subscriber continues to manufacture the above unerring and beautiful substitute for a lost limb, in which he has been so successful in this country for the past ten years; and from his long experience in Europe and this country, now over twenty-two years. All who have the misfortune to lose a limb, may rely upon obtaining the best substitute the world affords.

Also, SELPHO'S ARTIFICIAL HAND, an entirely new and useful substitute for a lost hand, so arranged that the wearer can open and shut the fingers, grasp, &c. Further application, personally or by letter, post-paid, attended to.—my6t

CLOTHING. IMMENSE STOCK OF SPRING AND SUMMER CLOTHING AT BOOTH & FOSTER'S FASHIONABLE CLOTHING ESTABLISHMENT, 27 COURTLAND STREET, BETWEEN THE WESTERN AND MERCHANTS' HOTEL.—WHOLESALE AND RETAIL.—The subscribers have now on hand one of the largest and most desirable assortments of SPRING and SUMMER CLOTHING ever before exhibited in this city. Their stock consists in part of dress and frock coats; sack, business and office coats; pants and vests of all the various styles and latest and richest patterns; dressing gowns; shirts; drawers; cravats; gloves; hosiery, handkerchiefs, &c. Also, a large assortment of blankets, and all the styles of clothing suitable to the California trade. The manufacturing department being under their own supervision, they feel the assurance that for variety or cheapness, they are without a rival. The attention of gentlemen visiting the city is respectfully invited to our assortment, where they can at once be supplied with every article requisite for a gentleman's wardrobe, equal in every respect to the best custom work, and at half the expense.

The Wholesale Department is at all times supplied with every variety of the most seasonable styles of goods, and they are enabled to supply Country Merchants at prices below those of any other establishment in this city. Garments purchased at their establishment, will be freely exchanged if they do not fit, and every article warranted as good as represented.

FULL SUITS furnished to order at a few hours' notice, and sent to any part of the United States.—J. C. BOOTH, H. L. FOSTER. my3t

WEBER'S ANATOMICAL ATLAS OF THE ADULT HUMAN BODY, NATURAL SIZE. W. ENDICOTT & Co., No. 59 Beekman-street, New York, have Lithographed and republished from the original German edition (the only American edition) the eleven entire figures contained in part first of the above-named well-known and valuable work, by Professor M. J. WEBER, of the Royal Prussian University FREDERICK WILLIAM, at Bonn. Figures I. K. and L., representing the veins and arteries, are accurately colored from the original copy, and the whole work, with a comprehensive "explanation," is offered for sale in sheets and portfolio at $15 per set, or mounted in the usual style of maps at $25 per set.

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